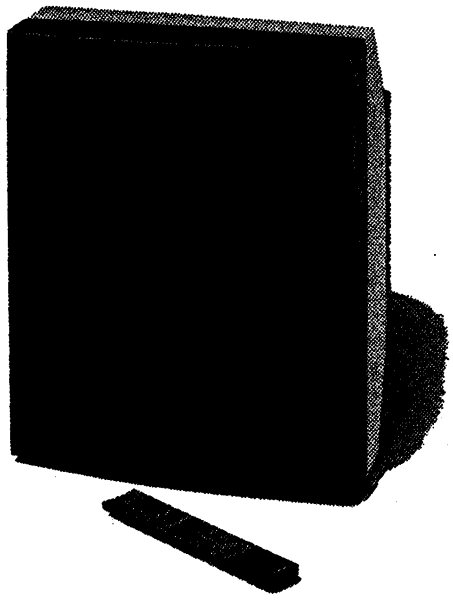
Bang & Olufsen



Beovision MX1500

Type 7800, 7801, 7802
7803, 7804, 7805

Beolink 1000

Type 3013, 3014, 3015

For Service Manuals Contact
MAURITRON TECHNICAL SERVICES
8 Cherry Tree Rd, Chinnor
Oxon OX9 4QY
Tel:- 01844-351694 Fax:- 01844-352554
Email:- enquiries@mauritron.co.uk

SERVICEANVISNING
SERVICE MANUAL

Indhold

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1-2

MÅLEBETINGELSER

Alle DC spændinger og oscilloskopbilleder skal måles i forhold til den nærmeste stelforbindelse på PCB'en.
DC spændinger skal måles på følgende måde:
Påfør ikke antennesignal. Indstil modtageren til min. lysstyrke og max. farvemætning og kontrast.
Oscilloskopbillederne skal måles under følgende betingelser:

a. Benyt en farvebjælke som indgangssignal.
b. Forbind et oscilloskop (0,1 V DC) til punkt 6 på IC7260 via en 10:1 probe.
   Indstil kontrolknappen for farvemætning således, at der opnås 3 V DC.
c. Forbind oscilloskopet til punkt 16 på IC7260.
d. Indstil kontrolknappen for lysstyrke således, at niveauet for den sorte bjælke i videosignalet ligger på 2,7 V.
e. Indstil kontrolknappen for kontrast til en videosignalamplitude på 2,4 V.

MEASURING CONDITIONS

The direct voltages and waveforms should be measured relative to the nearest earthing point on the p.c. board.
The direct voltages should be measured as follows:
Do not apply an aerial signal. Adjust receiver for minimum brightness, maximum saturation and contrast.
The waveforms should be measured under the following conditions:

a. Use a colour-bar pattern as input signal.
b. Connect an oscilloscope (0.1 V/div.-DC) to point 6 of IC7260 via an 10:1 attenuator probe.
   Set the saturation control to obtain 3 V d.c.
c. Connect the oscilloscope to point 16 of IC7260.
d. Set the brightness control so that the level of the black bar in the video signal is situated at 2.7 V.
e. Set the contrast control for a video signal amplitude of 2.4 V.

SYMBOL FOR SIKKERHEDSMODSTANDE

Ved udskiftning af komponenter med dette symbol skal der anvendes samme type, samt samme værdier for ohm og watt. Den nye komponent skal monteres på samme måde som den udskiftede.

SYMBOL FOR SAFETY RESISTORS

When replacing components with this symbol the same type has to be used, also the same values for ohm and watt. The new component is to be mounted in the same way as the replaced one.

SIKKERHEDSFORANSTALTNINGER MOD STATISK ELEKTRICITET

STATISK ELEKTRICITET

Alle integrerede kredsløb og mange andre halvledere er følsomme overfor elektrostatiske udladninger. Uforsigtig behandling under reparation medfører en drastisk forkortelse af levetiden.
Når man udfører reparationer, skal man sørge for, at man er forbundet til samme potentiale som apparatet via et håndledsbånd med indbygget modstand.
Komponenter og værktøj skal også holdes ved dette potentiale.

STATIC PRECAUTIONS

ESD

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD) Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

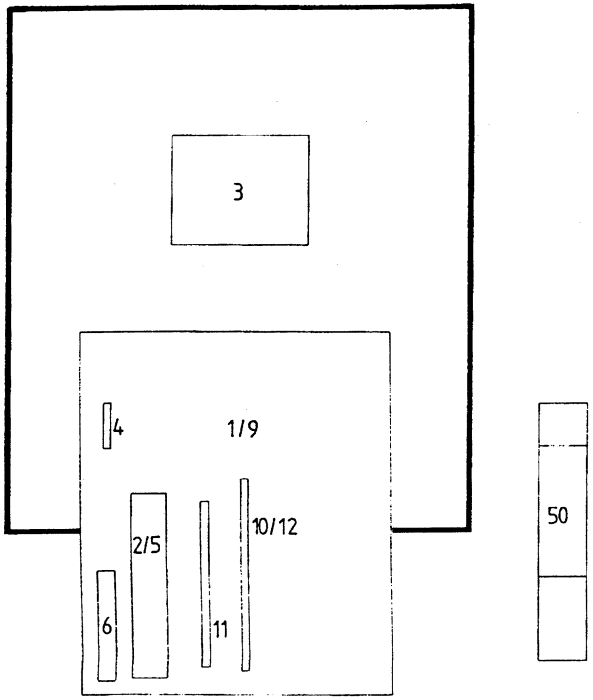
1-2

Bang & Olufsen

TECHNICAL SPECIFICATIONS	MX1500
Beovision MX1500	Type No. 7800, 7801, 7802, 7803, 7804, 7805, 7806, 7807
CTV system	B/G PAL S-tuner + UHF, 7800, 7801, 7802, 7805
CTV system	I PAL 7803, 7804
CTV system	B/G/L PAL SECAM 7806, 7807
Picture tube size	39 cm - 15"
Visual picture size	36 cm - 14"
Picture tube	Flat square, 90 degrees
Cabinet	Red, white, black and metallic grey
Features	Infrared cordless remote control
	Beolink 1000 operation
	Contrast screen
Display	Programme No., VHF-UHF bands,
	Picture and Sound adjustments
Teletext	Prepared, 3 languages 7800, 7803, 7806
Teletext, 3 languages	S-D-GB 7801, 7804
Teletext, 3 languages	D-I-F 7802, 7805, 7807
Number of programms	35
AV programmes	35, all automatic
Satellite programmes	Beosat RX, AV 21-pin connection
Digital tuning system	VHF-S-UHF,
	prepared for Hyper band
Tuner range	VHF 46 - 300 MHz,
	UHF 470 - 855 MHz
Sound system	Mono
Speaker system	Open baffle
Speaker	8 x 13 cm - 3" x 5" oval
Sound power output RMS	2 watts
Sound power output music	2.5 watts
Frequency range	35-18,000 Hz
Signal-to-noise ratio	<50 dB
Power supply	220 (240) volts/50-60 Hz
Power consumption	75 (70-100) watts
Power consumption Stand by	8 watts
Dimensions W x H x D	37 x 44 x 37 cm
Weight	12.5 kg
Connections:	
A/V, audio/video IN/OUT	21-pin
Headphones	Jack socket in front
Accessories:	
Kit teletext S-D-GB	8003918
Kit teletext D-I-F	8003919
Kit B/G PAL/SECAM	8003920
Subject to change without notice	

Modules

1	Mains Board	diagr. A-B-C page 2-2, 2-3, 2-4
2	Sync/IF PAL B/G	diagr. B-C page 2-3, 2-4
3	Video Output	diagr. C page 2-4
4	Mute panel	diagr. C page 2-4
5	Sync/IF PAL I	diagr. B-C page 2-3, 2-4
6	Tuner	
9	Mains Board GB	diagr. A-B-C page 2-2, 2-3, 2-4
10	Teletext (S-GB-D)	diagr. D page 2-5
11	PAL/SECAM	diagr. E page 2-8
12	Teletext (F-I-D)	diagr. D page 2-5
50	Beolink 1000	diagr. F page 2-9



DIAGRAMFORKLARING

De enkelte diagramsider er foroven betegnet med et bogstav f.eks. DIAGRAM A.

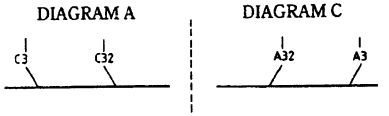
Komponenttryk og koordinatsystem

PCB-enhederne er forsynet med komponenttryk og koordinatsystem på både print- og komponentside.

Ledningsforbindelser på diagrammerne

Nogle af ledningsforbindelserne på diagrammerne er samlet i »bundter«. Hver enkelt af disse ledninger er forsynet med en kode, der fortæller hvortil de går.

Intern forbindelse på en diagramside
Interne forbindelser på en diagramside er angivet med et tal, knækket på ledningen viser i hvilken retning den anden ende af ledningen findes (fig. 1).



Forbindelse til en anden diagramside
Forbindelser til en anden diagramside angives med et tal, samt bogstav betegnelsen på det diagram, forbindelsen går til (fig. 2).

Stedsymboler

Der anvendes to forskellige stelsymboler i diagrammerne som vist.

= Stel der ikke er galvanisk adskilt fra lysnettet.

= Stel

Signalveje og markering på IC'erne

Signalvejene er vist på diagrammerne ved hjælp af kraftigere optrukne streger og pile. Der anvendes to forskellige typer pile som vist.

= Video, luminans, chrominans og audio signalerne.

= DC.

Pilene der er vist på benene af IC'erne, fortæller om det pågældende ben er en ind- eller udgang.

1-1

KEY TO DIAGRAMS

Each individual diagram page is marked by a letter at the top, e.g. DIAGRAM A.

Component print and co-ordinate system

The PCB units have component print and co-ordinate system both on the print and on the component sides.

Cable connections in the diagrams

Some of the cable connections in the diagrams are assembled in »bundles«.
Each individual cable has its own code which tells to where it leads.

Internal connection on a diagram page
Internal connections on a diagram page are indicated by a number. The break on the cable shows in what direction the other end of the cable is to be found (fig. 1).

Connection to another diagram page
Connections to another diagram page are indicated by a number together with the letter indication of the diagram to which the connection leads (fig. 2).

Ground symbols

Two different ground symbols are used in the diagrams:

= Ground that is not galvanically separated from the mains.

= Ground

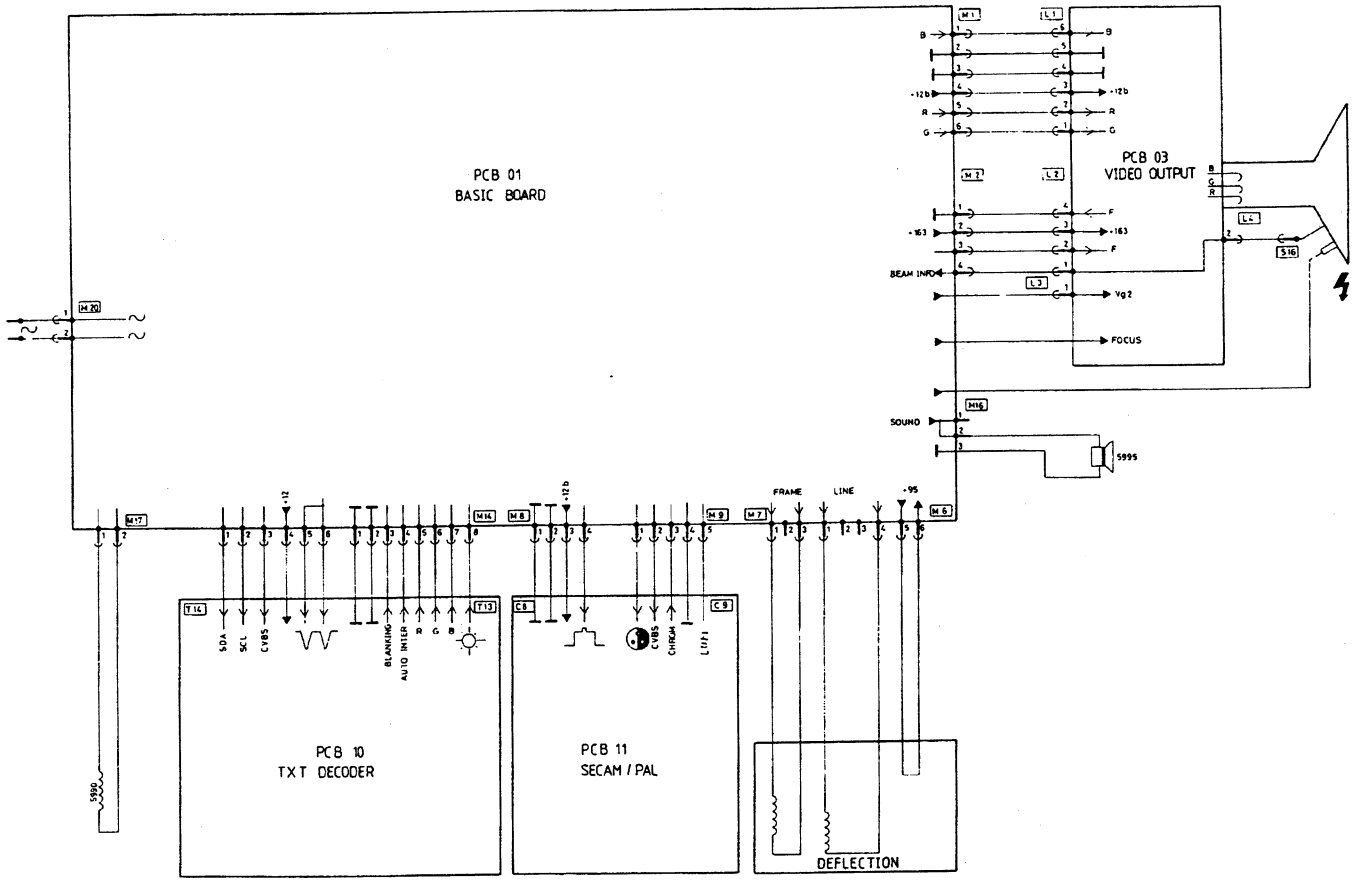
Signal paths and IC markings

The signal paths are shown in the diagrams by mans of semibold lines and arrow heads. As shown, two different types of arrow head are used:

= Video, luminance, chrominance and audio signals

= DC.

The arrow heads shown at the IC pins tell if the pin so indicated is an input or an output.


PCB 01
BASIC BOARD
PCB 03
VIDEO OUTPUT
PCB 10
TXT DECODER
PCB 11
SECAM / PAL
DEFLECTION
FRAME
LINE
SOUND
FOCUS
BEAM INFO
SDA
SCL
CVBS
BLANKING
AUIO INTER
CHROM
LUM

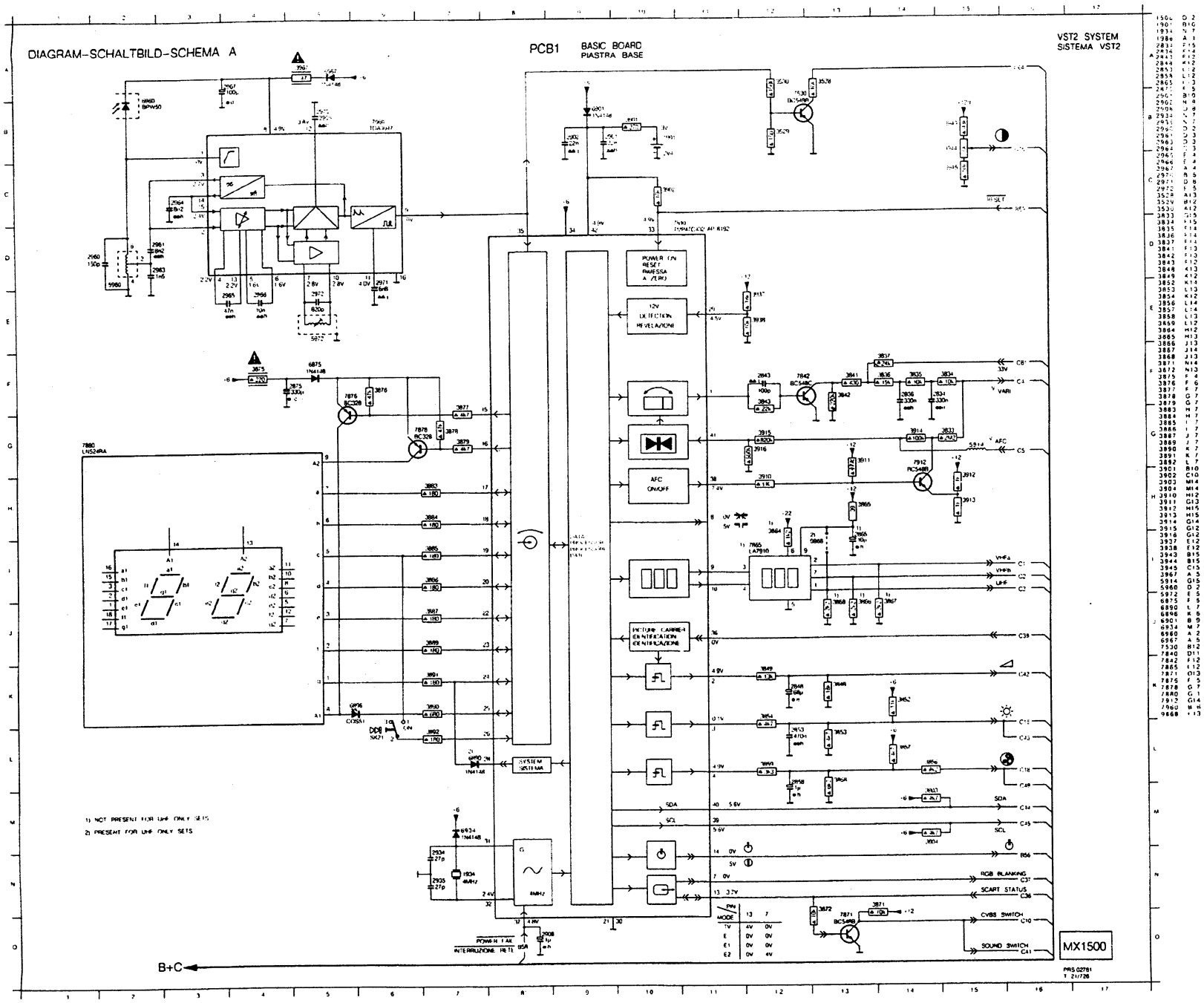
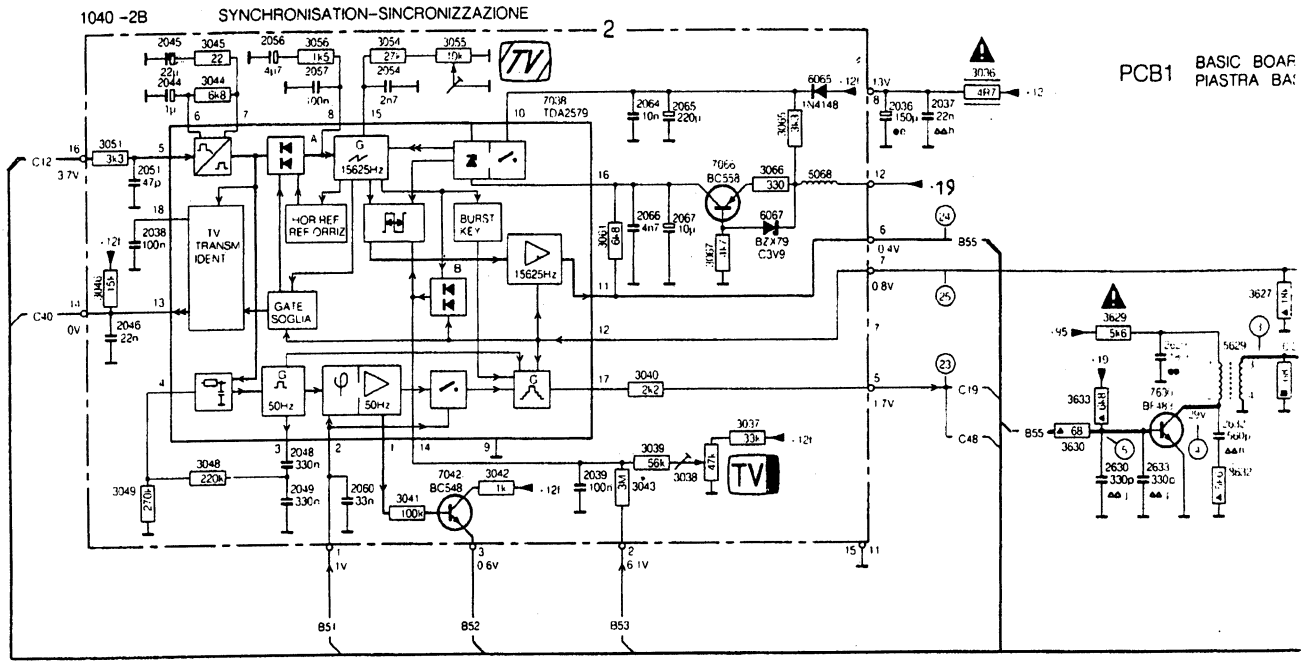
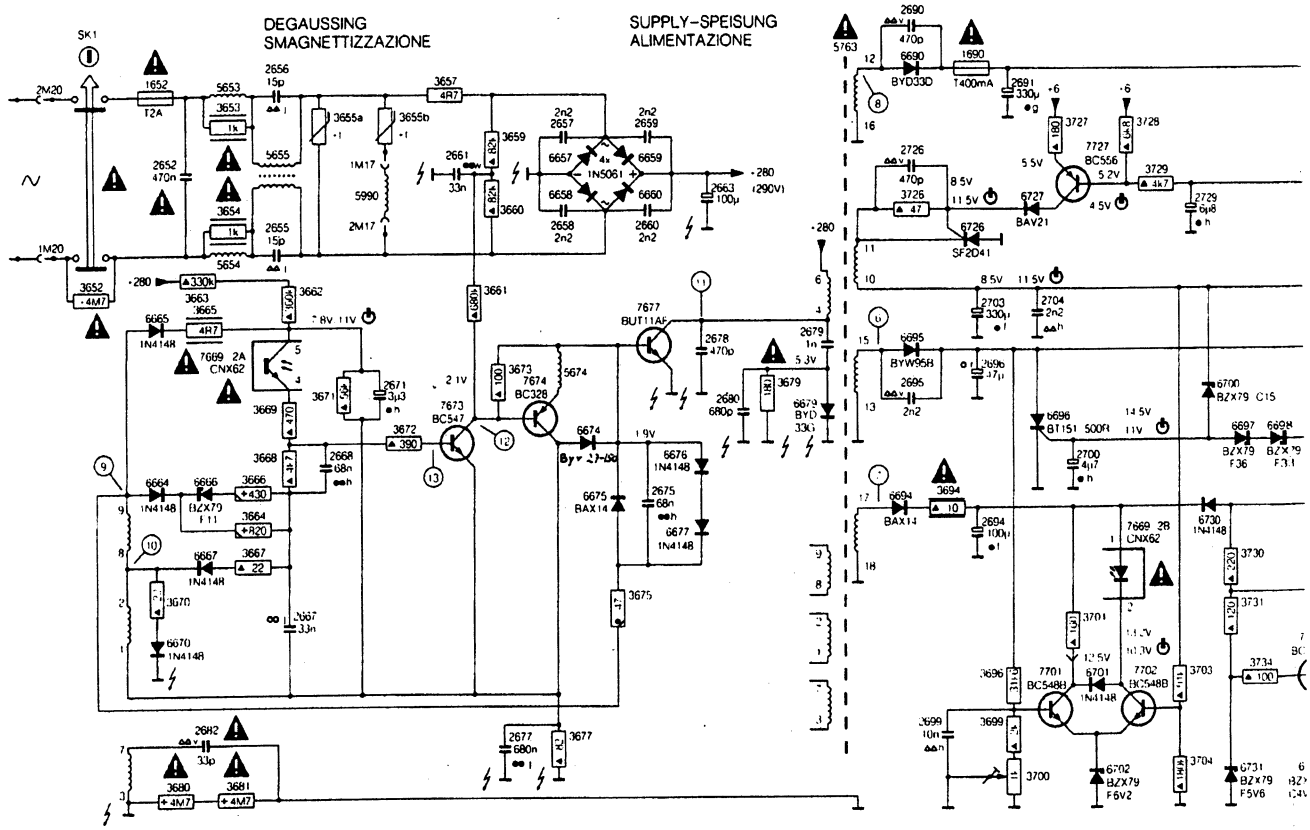


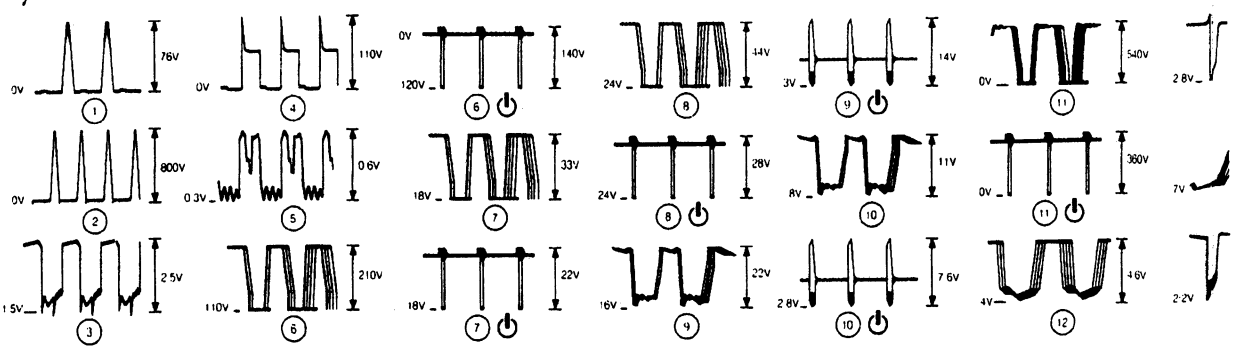
DIAGRAM-SCHALTBILD-SCHEMA A
PCB1 BASIC BOARD
PIASTRA BASE
VST2 SYSTEM
SISTEMA VST2
POWER ON RESET
12V DETECTION
AFC ON/OFF
SYSTEM
SDA
SCL
RGB BLANKING
SCART STATUS
CVBS SWITCH
SOUND SWITCH
B+C
MX1500

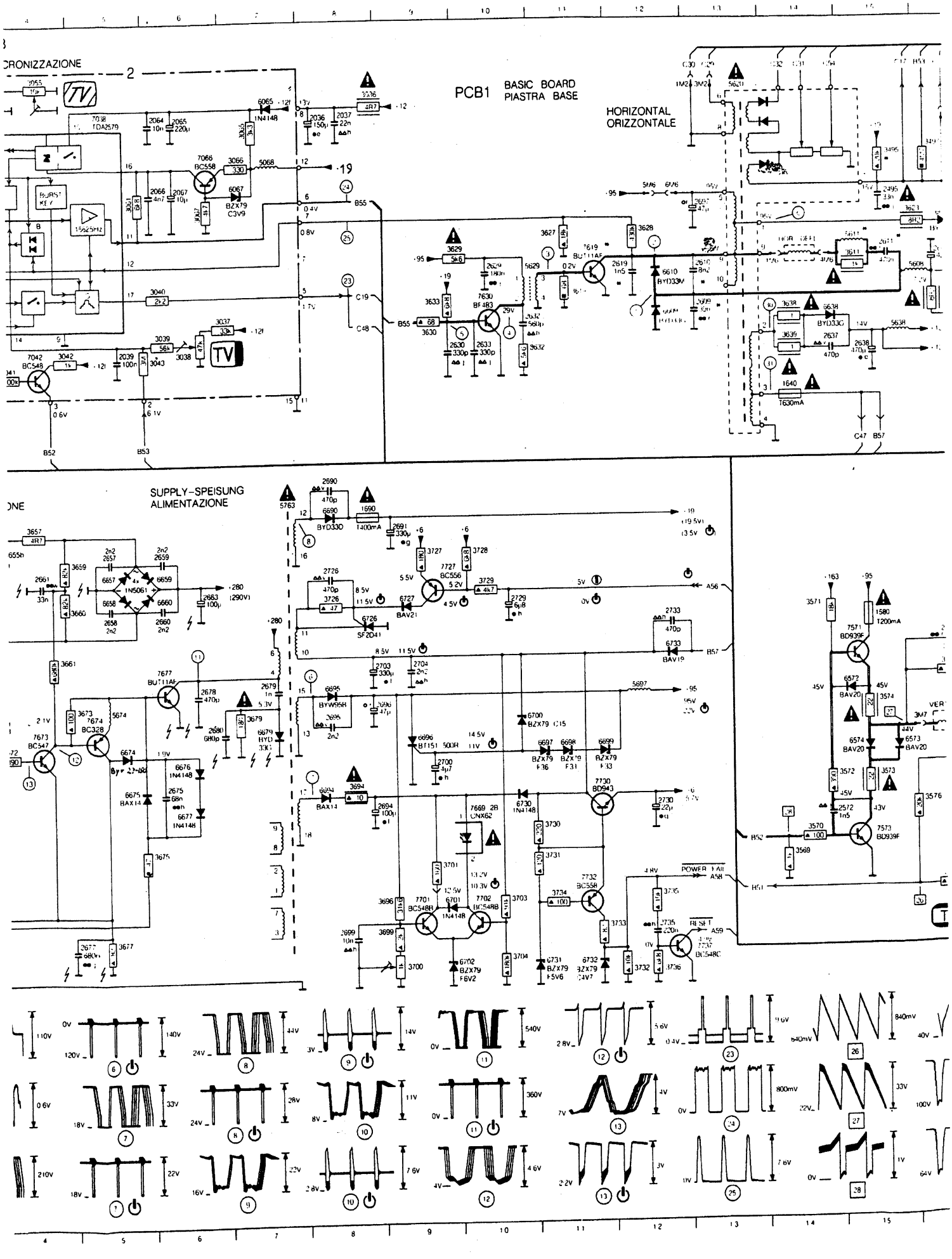
DIAGRAM-SCHALTBILD-SCHEMA B

1040 -2B SYNCHRONISATION-SINCRONIZZAZIONE








PCB1 BASIC BOARD
PIASTRA BASE
HORIZONTAL
ORIZZONTALE
SUPPLY-SPEISUNG
ALIMENTAZIONE
SINCRONIZZAZIONE
TDA2579
BC558
BC548
BC328
BC547
BF483
BU111AF
BD330
BD333C
BD939F
BD943
BC556
BZX79 C3V9
BZX79 F6V2
BZX79 F5V6
BZX79 F24
BZX79 F31
BZX79 F33
BZX79 C15
BAV21
BAV19
BAV20
SF2041
BYW95R
BT151 500R
1N5061
1N4148
BAX14
ONX62
BC548B
BC548C
POWER FAIL
BLANK
TV

31 BASIC BOARD
PIASTRA BASE

HORIZONTAL
ORIZZONTALE

EAST-WEST
OST-WEST
EST-OVEST

VERTICAL
VERTIKAL
VERTICALE

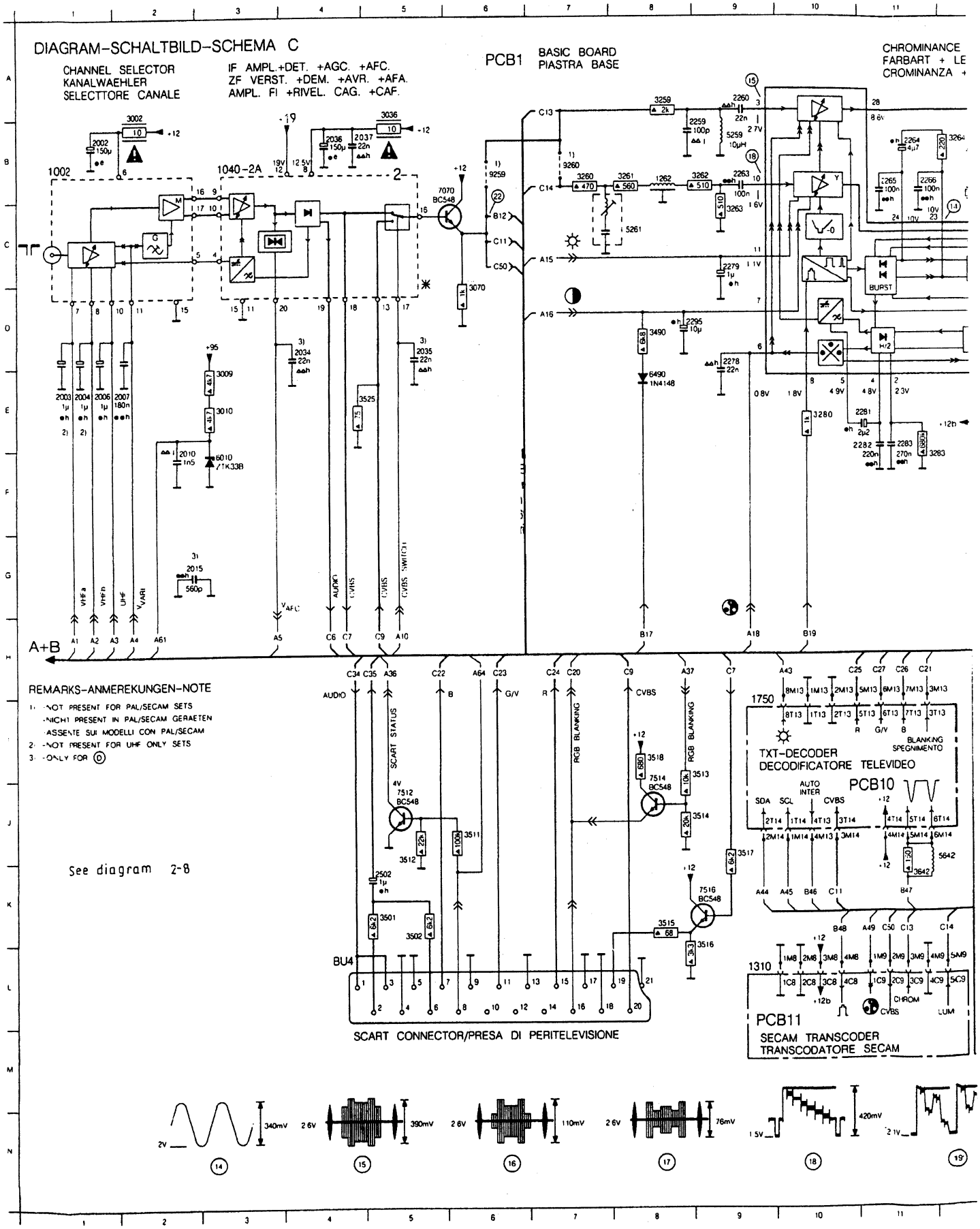
A+C

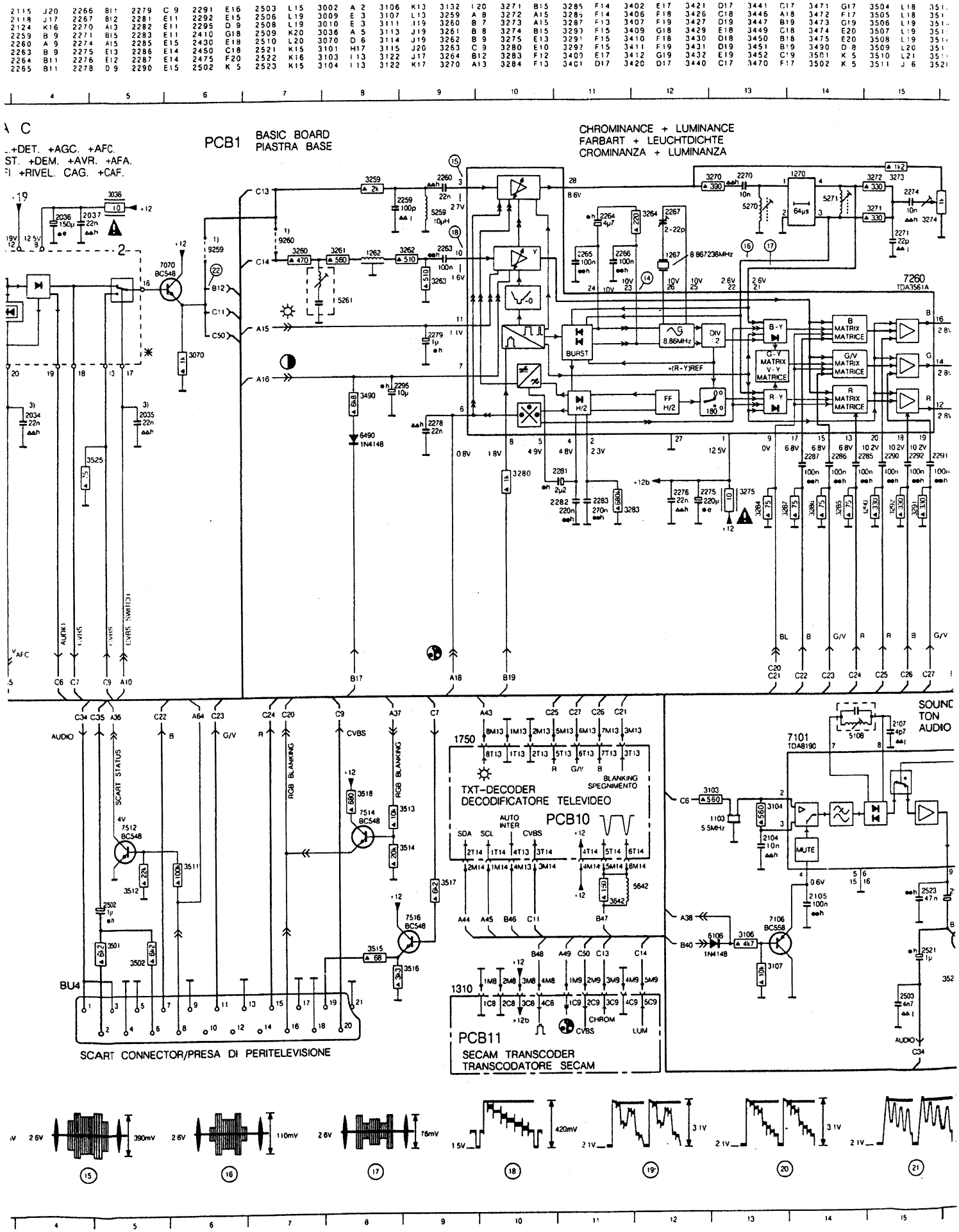
MX1500

PRS 02791
T-21/729

1640	A 1	3666	J 2				
1580	H15	3667	K 2				
1640	E14	3668	J 3				
1652	G 2	3669	I 3				
1690	G 8	3670	K 4				
2036	B 8	3671	I 3				
2037	A 8	3672	J 4				
2038	B 2	3673	I 5				
2039	D 5	3675	K 6				
2044	A 2	3677	L 5				
2045	A 2	3679	L 7				
2046	C 1	3680	L 2				
2048	D 3	3681	L 2				
2049	E 3	3694	J 8				
2051	B 2	3696	L 9				
2054	A 4	3699	L 9				
2056	A 3	3700	K 9				
2057	A 3	3701	K 9				
2060	E 3	3703	L10				
2064	A 6	3704	L10				
2065	B 6	3726	H 8				
2066	B 6	3727	G 9				
2067	B 5	3728	G10				
2495	C15	3729	G10				
2572	J15	3730	K11				
2577	H16	3731	K11				
2578	J16	3732	L12				
2580	J17	3733	L12				
2594	E19	3734	K11				
2596	D18	3735	L12				
2600	D17	3736	L12				
2601	D19	5568	B 7				
2608	C16	5650	D16				
2609	D13	5678	D16				
2610	C13	5811	C15				
2611	C15	5820	A13				
2619	C12	5829	C11				
2623	C17	5838	C15				
2629	C10	5853	G 2				
2630	D10	5854	H 2				
2632	D11	5855	G 3				
2633	D10	5874	I 5				
2637	D14	5897	I12				
2638	E15	5763	F 7				
2652	G 2	5990	H 3				
2655	H 3	6065	A 7				
2656	G 3	6067	B 7				
2657	G 5	6572	I15				
2658	H 5	6573	J15				
2659	G 6	6574	J15				
2660	H 6	6609	D12				
2661	G 4	6610	D12				
2663	H 6	6623	C16				
2667	K 3	6638	D14				
2668	J 3	6657	G 5				
2671	I 4	6658	H 5				
2675	J 6	6659	G 6				
2677	L 5	6660	H 6				
2678	I 6	6664	J 2				
2679	I 7	6665	I 2				
2680	I 6	6666	J 2				
2682	L 2	6667	K 2				
2690	F 8	6670	K 2				
2691	G 9	6674	J 5				
2694	J 9	6675	J 5				
2695	I 8	6676	J 6				
2696	I 9	6677	J 6				
2697	C13	6679	I 7				
2699	L 8	6690	G 8				
2700	J 9	6694	J 8				
2703	I 9	6695	I 8				
2704	I 9	6696	I 9				
2726	G 8	6697	J11				
2729	H10	6698	J11				
2730	J12	6699	J11				
2733	H12	6700	I11				
2735	L12	6701	L 9				
3036	A 8	6702	L10				
3037	D 7	6726	H 8				
3038	E 6	6727	H 9				
3039	D 6	6730	J10				
3040	D 6	6731	L11				
3041	E 4	6732	L11				
3042	D 4	6733	H12				
3043	E 5	7038	A 5				
3044	A 2	7042	D 4				
3045	A 2	7066	B 6				
3046	C 1	7571	H15				
3048	D 2	7573	K15				
3049	E 1	7600	E17				
3051	B 1	7601	E16				
3054	A 4	7619	C11				
3055	A 4	7630	D10				
3056	A 3	7669	I 2				
3061	C 5	7669	J10				
3065	B 7	7673	I 4				
3066	B 7	7674	I 5				
3067	C 6	7677	I 6				
3495	B15	7701	L 9				
3497	B16	7702	L10				
3569	K14	7727	G 9				
3570	K14	7730	J11				
3571	H14	7732	K11				
3572	J15	7737	L13				
3573	J15	SK1	F 1				
3574	I15	SK20	I18				
3575	J16						
3576	J16						
3577	I16						
3578	J16						
3579	K16						
3580	L16						
3581	K16						
3582	K17						
3583	J18						
3584	I17						
3585	I18						
3594	E19						
3595	E18						
3597	D18						
3598	E18						
3600	D16						
3601	D17						
3611	C15						
3619	D11						
3623	C16						
3627	C11						
3628	C12						
3629	C10						
3630	D 9						
3632	D11						
3633	D 9						
3638	D14						
3639	D14						
3652	H 1						
3653	G 2						
3654	H 2						
3655a	G 3						
3655b	G 4						
3657	G 4						
3659	G 5						
3660	H 5						
3661	H 4						
3662	H 3						
3663	H 2						
3664	J 2						
3665	I 2						

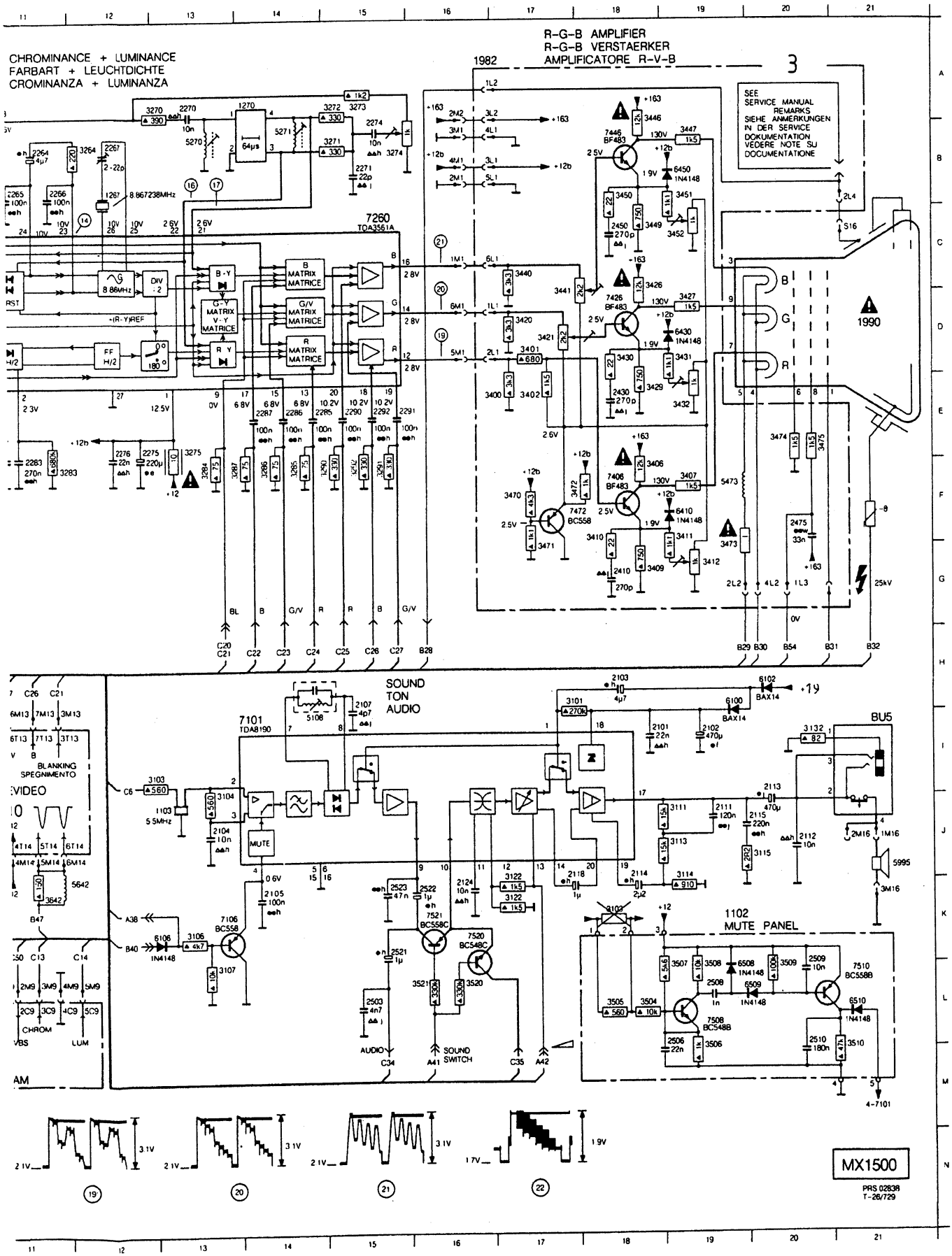
1002	B 1	1750	I 9	2010	F 2	2103	H18	2115	J20	2266	B11	2279	C 9	2291	E16	2503	L15	3002	A 2	3106	K13	3132	I 20	3271	B15	3285	F14	3402
1040	B 3	1982	A17	2015	G 2	2104	J13	2118	J17	2267	B12	2281	E11	2292	E15	2506	L19	3009	E 3	3107	L13	3259	A 8	3272	A15	3286	F14	3406
1102	K19	1990	D21	2034	D 4	2105	K14	2124	K16	2270	A13	2282	E11	2295	D 9	2508	L19	3010	E 3	3111	J19	3260	B 7	3273	A15	3287	F13	3407
1103	J13	2002	B 1	2035	D 5	2107	H15	2259	B 9	2271	B15	2283	E11	2410	G18	2509	K20	3036	A 5	3113	J19	3261	B 8	3274	B15	3293	F15	3409
1262	B 8	2003	E 1	2036	B 4	2111	J19	2260	A 9	2274	A15	2285	E15	2430	E18	2510	L20	3070	D 6	3114	J19	3262	B 9	3275	E13	3291	F15	3410
1267	B12	2004	E 1	2037	B 5	2112	J20	2263	B 9	2275	E13	2286	E14	2450	C18	2521	K15	3101	H17	3115	J20	3263	C 9	3280	E10	3292	F15	3411
1270	A14	2006	E 1	2101	I19	2113	I20	2264	B11	2276	E12	2287	E14	2475	F20	2522	K16	3103	I13	3122	J17	3264	B12	3283	F12	3403	E17	3412
1310	L 9	2007	E 2	2102	I19	2114	J18	2265	B11	2278	D 9	2290	E15	2502	K 5	2523	K15	3104	I13	3122	K17	3270	A13	3284	F13	3401	D17	3420



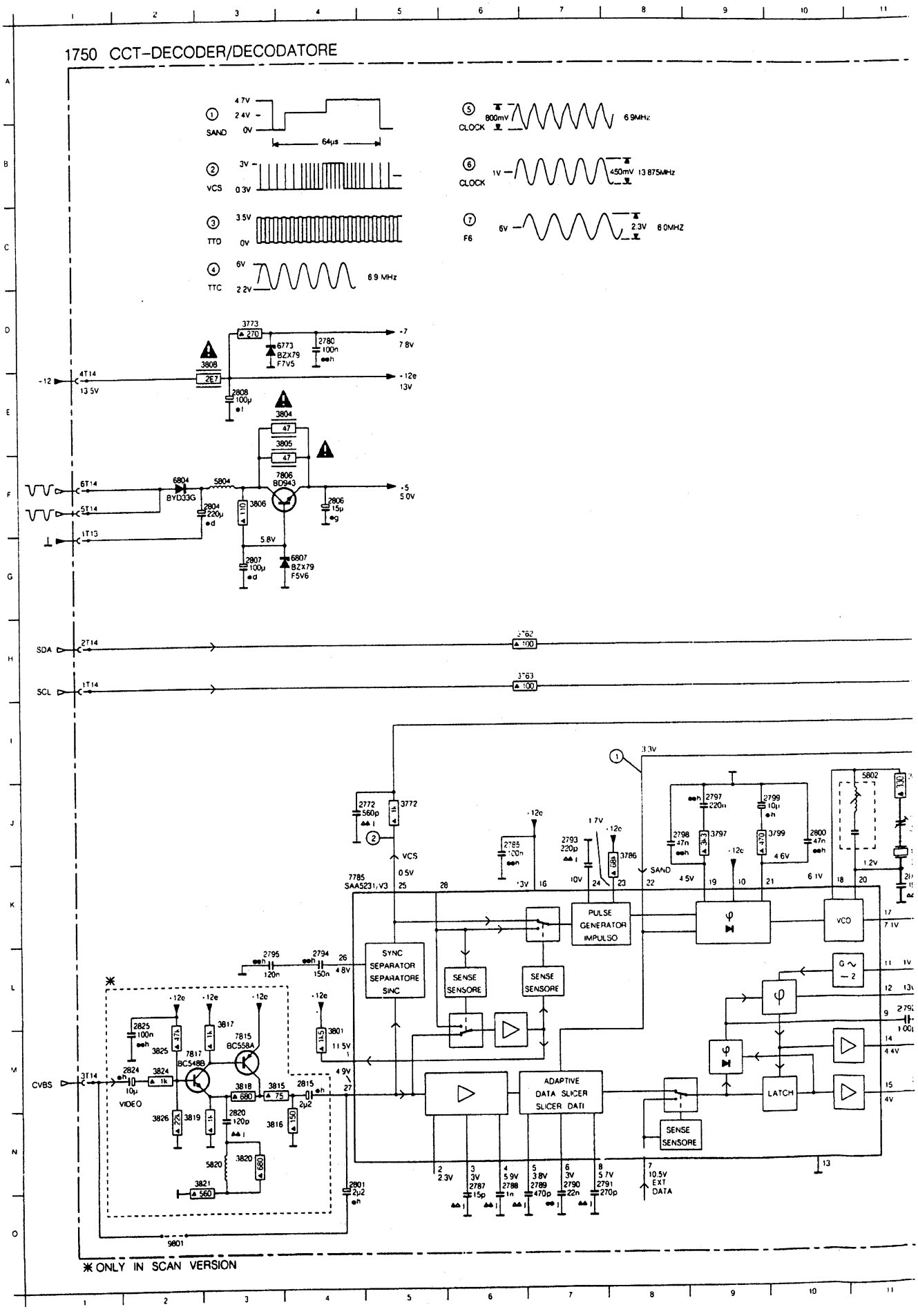

PCB1 BASIC BOARD
PIASTRA BASE
CHROMINANCE + LUMINANCE
FARBART + LEUCHTDICHTE
CROMINANZA + LUMINANZA
+DET. +AGC. +AFC.
ST. +DEM. +AVR. +AFA.
+RIVEL. CAG. +CAF.
7260
TDA3561A
BURST
8.86MHz
DIV :2
FF H/2
H/2
B-Y MATRIX MATRICE
G-Y MATRIX V-Y MATRICE
R-Y MATRIX MATRICE
+(R-Y)REF
8 867238MHz
7070 BC548
7512 BC548
7514 BC548
7516 BC548
7106 BC558
6106 1N4148
6490 1N4148
AUDIO
CVBS
CVBS SWITCH
SCART STATUS
RGB BLANKING
BU4
SCART CONNECTOR/PRESA DI PERITELEVISIONE
1750
TXT-DECODER
DECODIFICATORE TELEVIDEO
PCB10
AUTO INTER
BLANKING SPEGNIMENTO
1310
PCB11
SECAM TRANSCODER
TRANSCODATORE SECAM
CHROM
LUM
7101
TDA8190
SOUND
TON
AUDIO
MUTE
1103 5.5MHz
390mV
110mV
78mV
420mV
3.1V

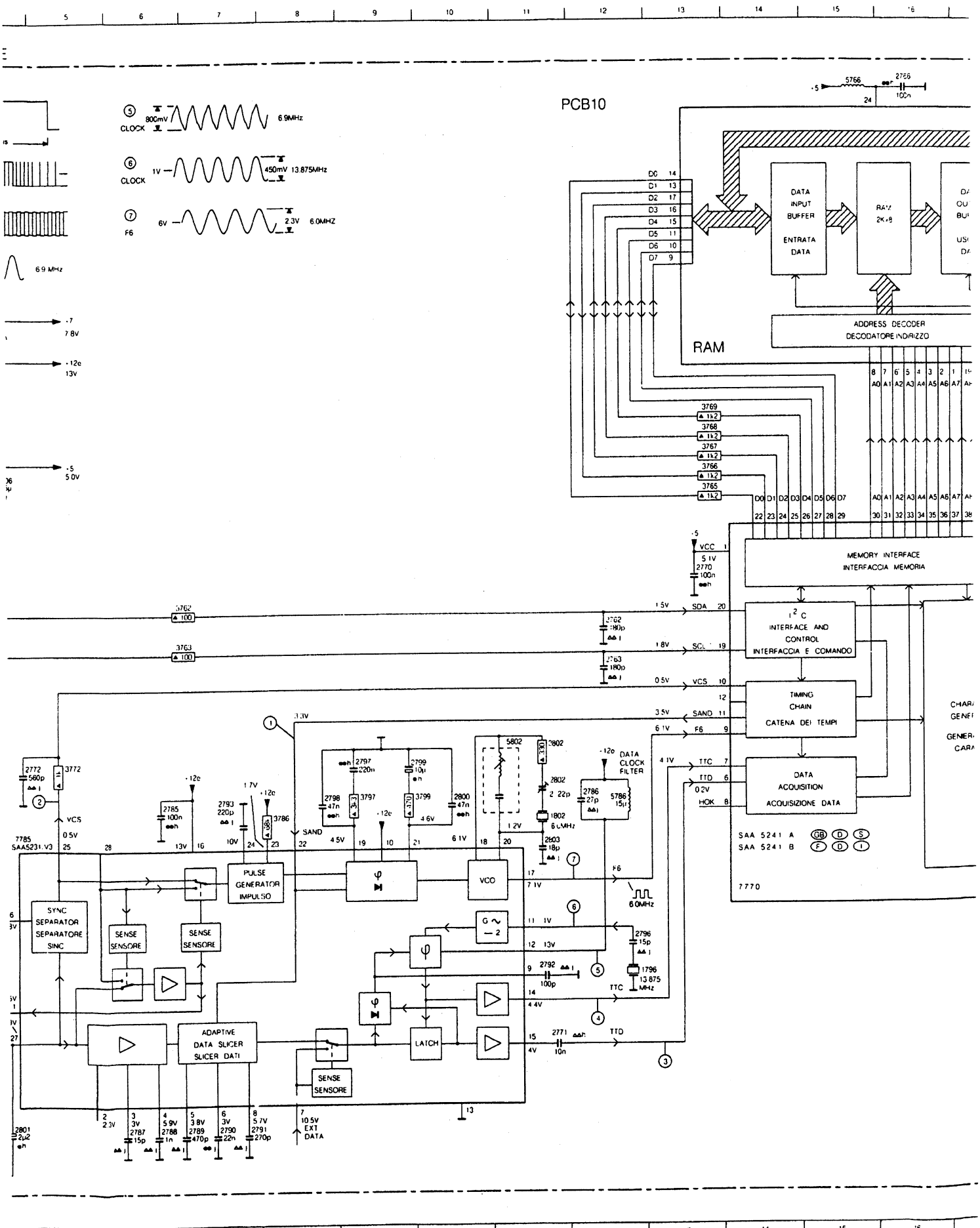
Bang & Olufsen

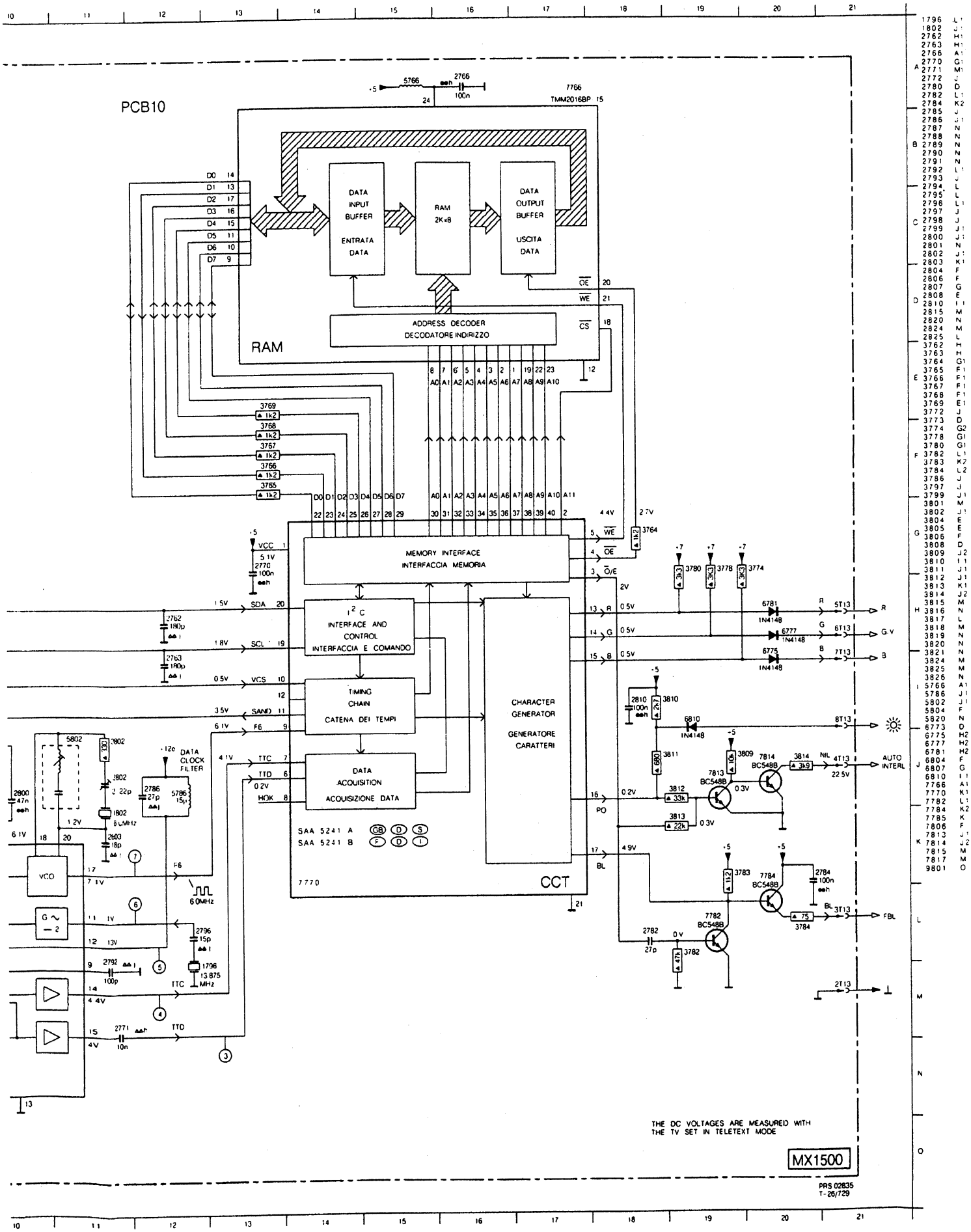
86	F14	3402	E17	3421	D17	3441	C17	3471	G17	3504	L18	3512	J 5	3521	L16	5473	F19	6430	D19	7106	K13	7512	J 5
86	F14	3406	F18	3426	C18	3446	A18	3472	F17	3505	L18	3513	I 9	3525	E 5	5642	J12	6450	B19	7260	C15	7514	J 8
87	F13	3107	F19	3427	D19	3447	B19	3473	G19	3506	L19	3514	J 9	3642	K11	5995	J21	6490	E 8	7406	F18	7516	K 9
90	F15	3409	G18	3429	E18	3449	C18	3474	E20	3507	L19	3515	K 8	5108	I 14	6010	F 3	6508	L19	7426	D18	7520	K16
91	F15	3410	F18	3430	D18	3450	B18	3475	E20	3508	L19	3516	L 9	5259	B 9	6100	H19	6509	L20	7446	B18	7521	K16
92	F15	3411	F19	3431	D19	3451	B19	3490	D 8	3509	L20	3517	J 9	5261	C 8	6102	H20	6510	L21	7472	F18	9259	B 6
00	E17	3412	G19	3432	E19	3452	C19	3501	K 5	3510	L21	3518	I 8	5270	B13	6106	K13	7070	B 6	7508	L19	9260	B 7
01	D17	3420	D17	3440	C17	3470	F17	3502	K 5	3511	J 6	3520	L16	5271	B14	6410	F19	7101	I14	7510	L21	BU4	L 4



Teletext diagram D




PCB10
CLOCK 800mV 6.9MHz
CLOCK 1V 450mV 13.875MHz
F6 6V 2.3V 6.0MHZ
6.9 MHz
7.8V
13V
5.0V
DATA INPUT BUFFER
ENTRATA DATA
RAM 2K x 8
ADDRESS DECODER
DECODATORE INDIRIZZO
RAM
MEMORY INTERFACE
INTERFACCIA MEMORIA
I2C INTERFACE AND CONTROL
INTERFACCIA E COMANDO
TIMING CHAIN
CATENA DEI TEMPI
DATA ACQUISITION
ACQUISIZIONE DATA
DATA CLOCK FILTER
SAA 5241 A
SAA 5241 B
7770
7785 SAA5231.V3
PULSE GENERATOR
IMPULSO
SYNC SEPARATOR
SEPARATORE SINC
SENSE SENSORE
VCO
LATCH
ADAPTIVE DATA SLICER
SLICER DATI
EXT DATA
SDA
SCL
VCS
SAND
F6
TTC
TTD
HOK
6.0MHz
13.875 MHz

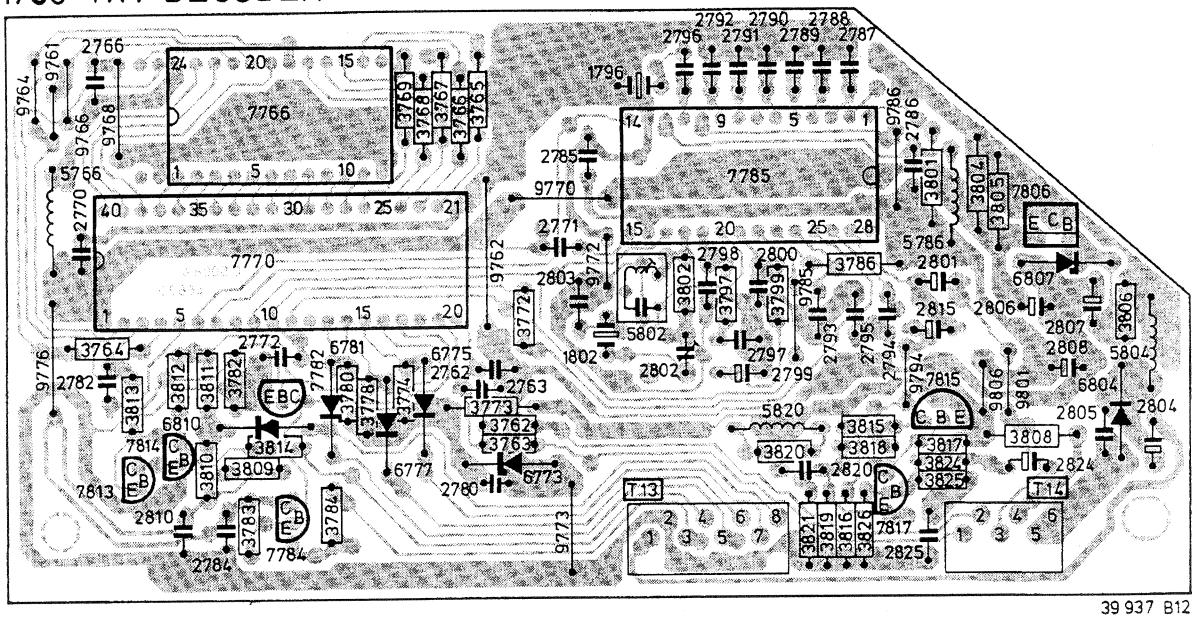

PCB10
RAM
DATA INPUT BUFFER
ENTRATA DATA
RAM 2K x 8
DATA OUTPUT BUFFER
USCITA DATA
ADDRESS DECODER
DECODATORE INDIRIZZO
MEMORY INTERFACE
INTERFACCIA MEMORIA
I2C INTERFACE AND CONTROL
INTERFACCIA E COMANDO
TIMING CHAIN
CATENA DEI TEMPI
DATA ACQUISITION
ACQUISIZIONE DATA
CHARACTER GENERATOR
GENERATORE CARATTERI
CCT
SAA 5241 A
SAA 5241 B
VCO
DATA CLOCK FILTER
AUTO INTERL
FBL
THE DC VOLTAGES ARE MEASURED WITH THE TV SET IN TELETEXT MODE
MX1500
PRS 02835
T-26/729

2-5

Teletext PCB19

1750 TXT DECODER

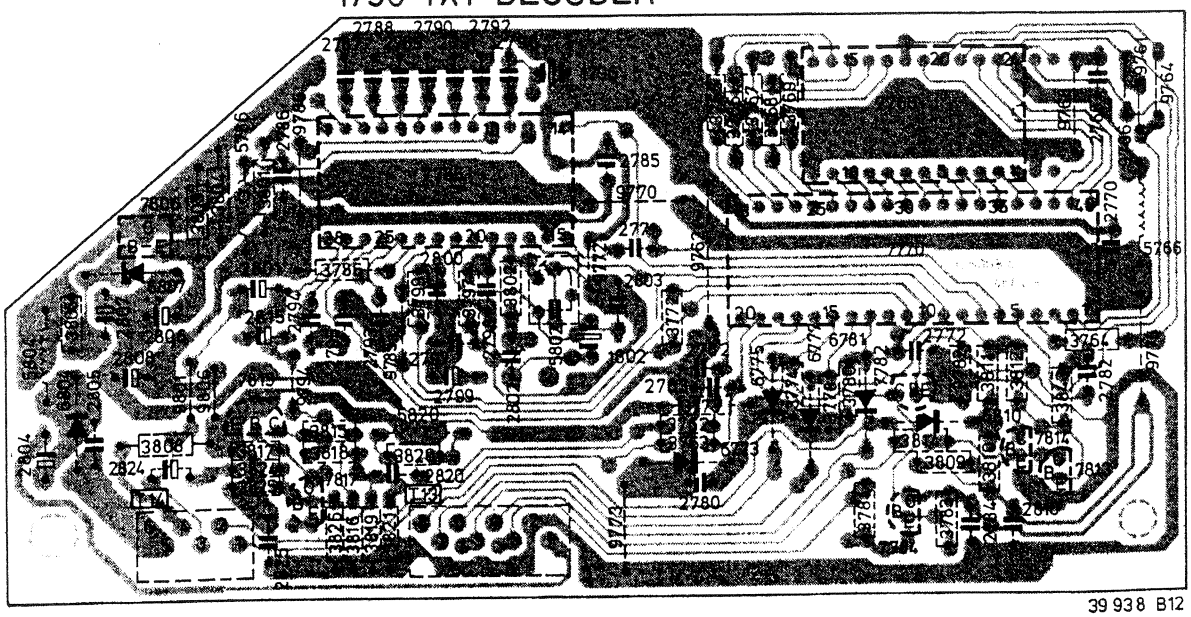
Komponentside



39 937 B12

1750 TXT DECODER

Solderside

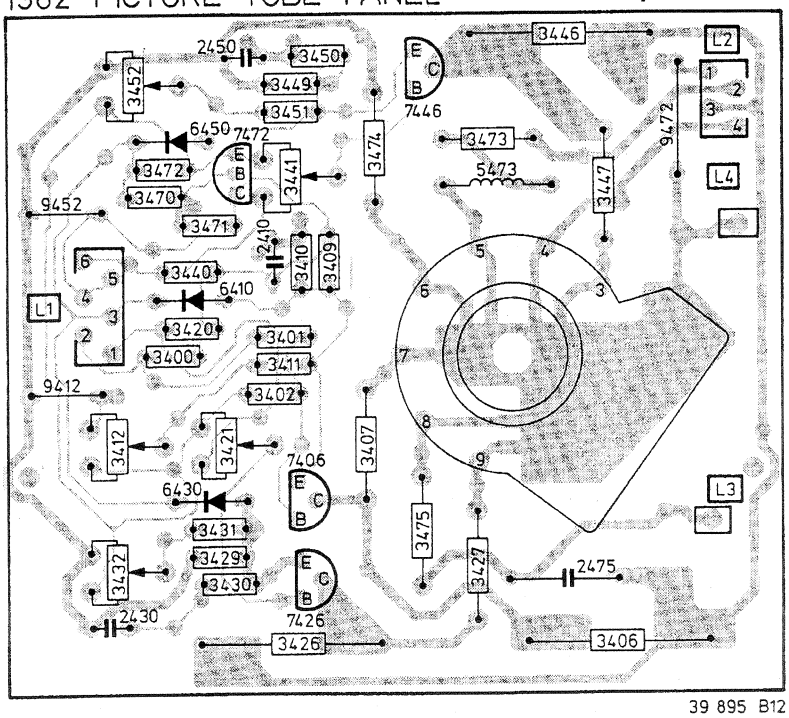


39 938 B12

2-6

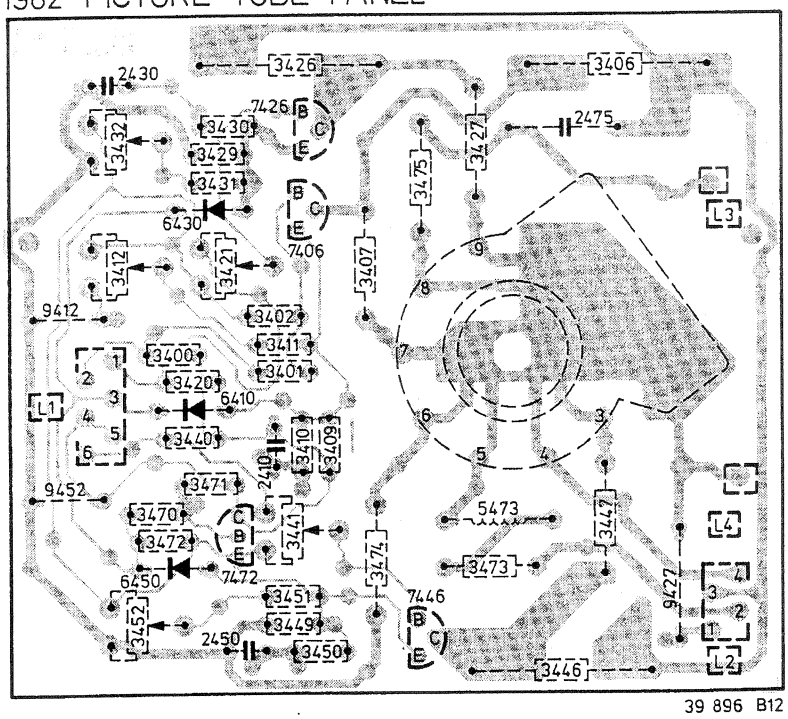
Video output PCB3

1982 PICTURE TUBE PANEL **Komponentside**



39 895 B12

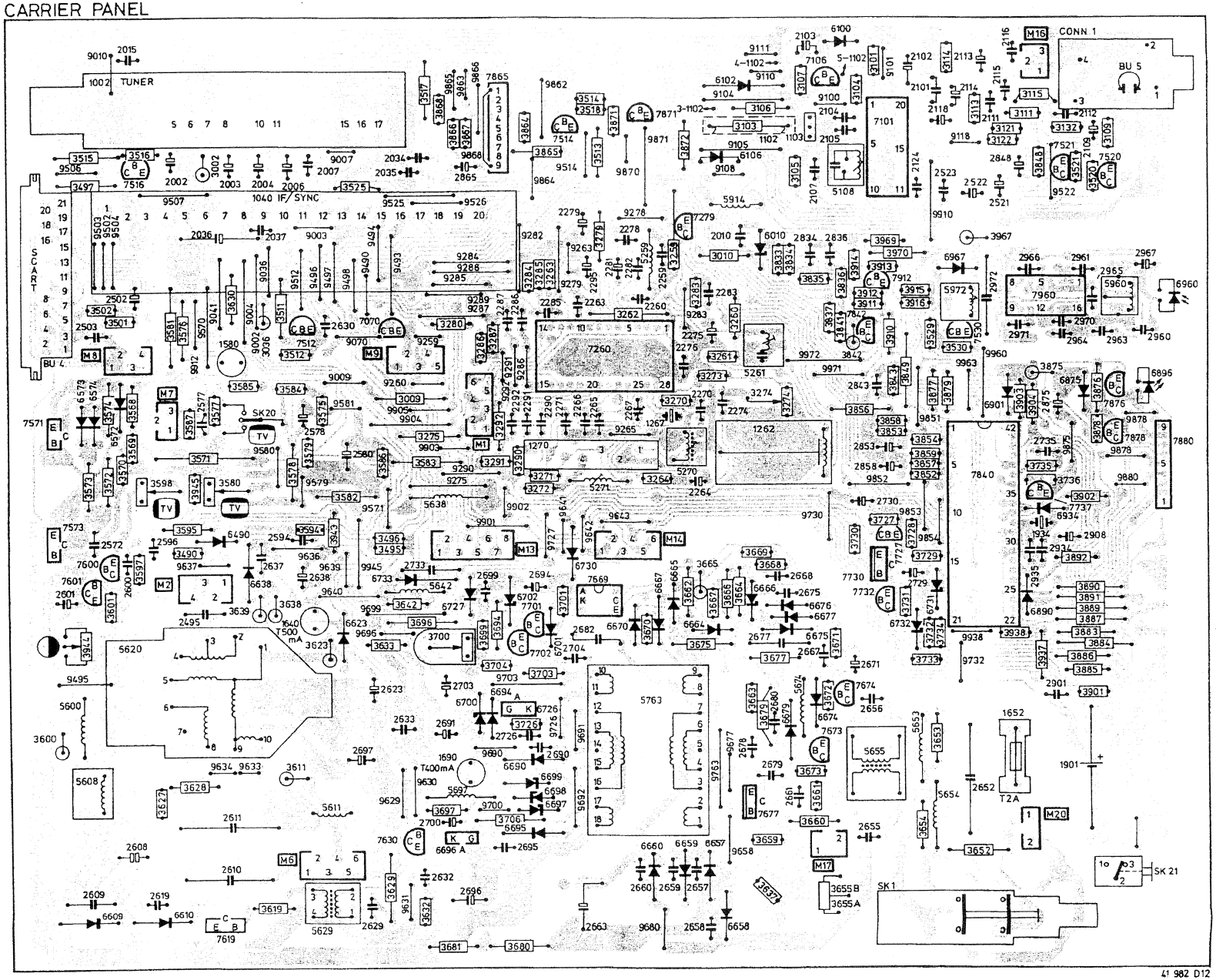
1982 PICTURE TUBE PANEL **Solderside**



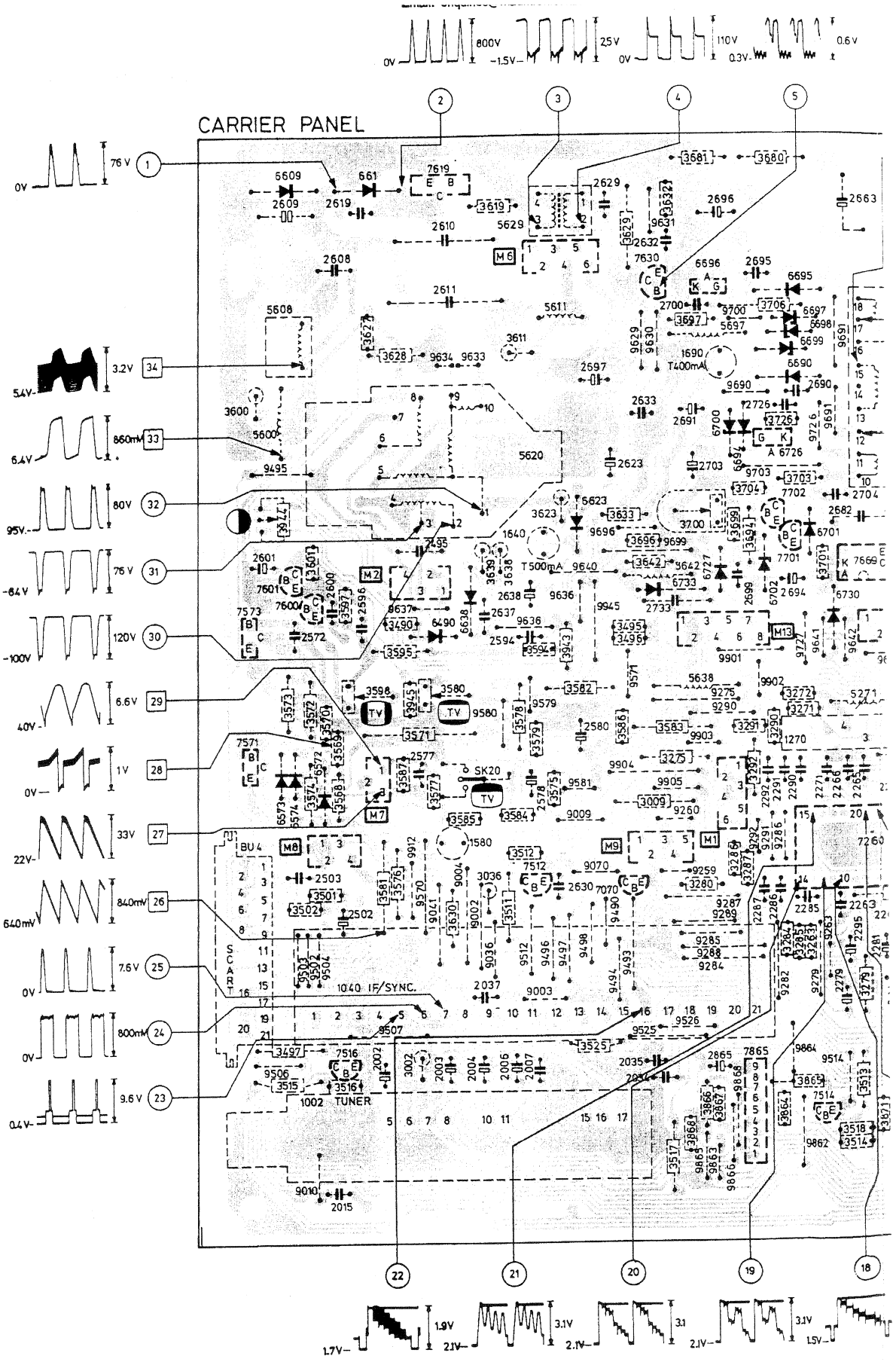
39 896 B12

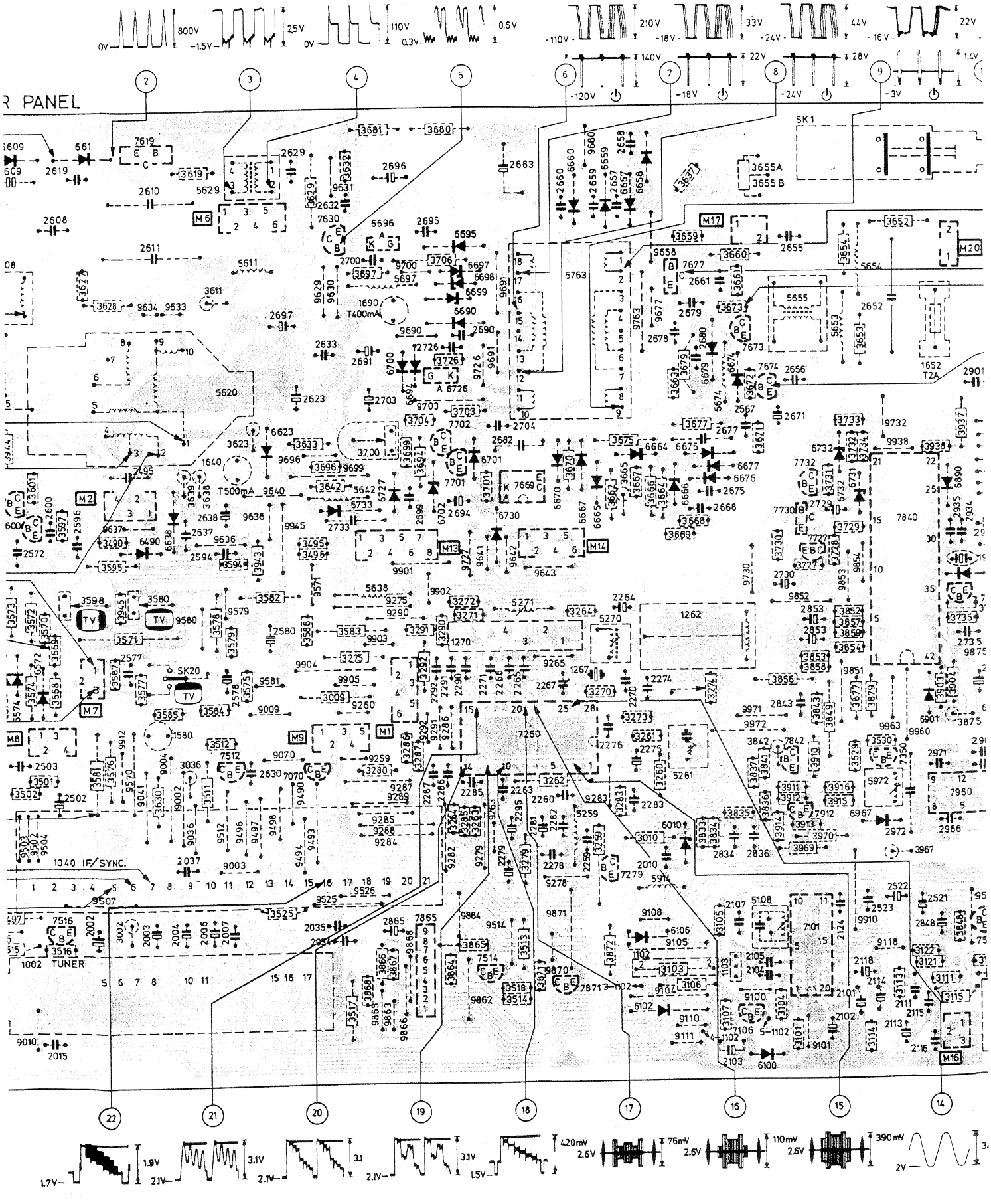
Komponentside

CARRIER PANEL

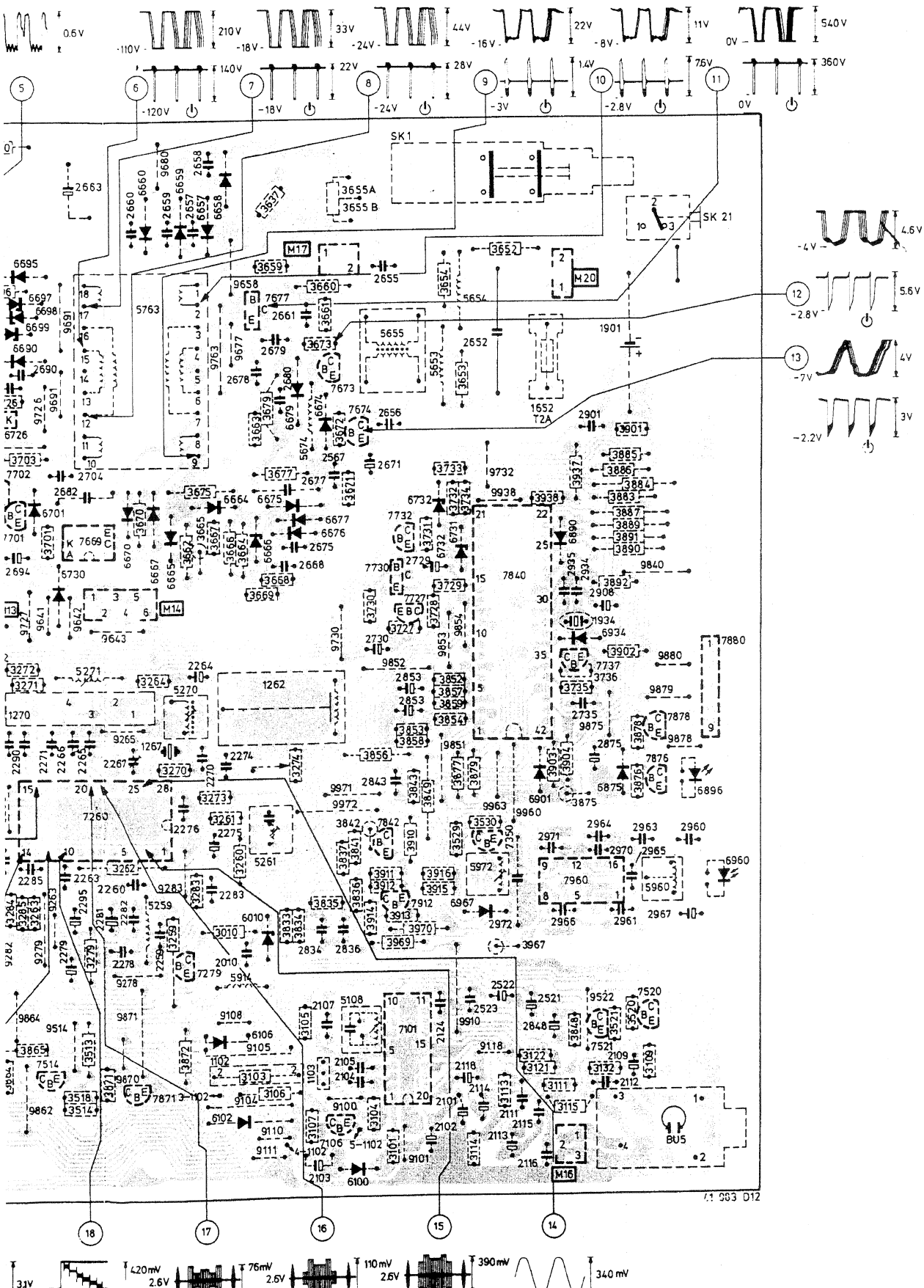


Solderside


CARRIER PANEL
0V
800V
-1.5V-
2.5V
0V
110V
0.3V-
0.6 v
76 V
3.2V
5.4V-
860mV
6.4V
80V
95V-
75 V
-64 V
120V
-100V
6.6V
40V-
1V
0V-
33V
22V-
840mV
640mV
7.6V
0V
800mV
0V
9.6 V
0.4 V-
1040 IF/SYNC.
1002 TUNER
SCART
BU4
T500mA
T400mA
SK20
1.7V-
1.9V
2.1V-
3.1V
2.1V-
3.1
2.1V-
3.1V
1.5V-


R PANEL
1040 IF/SYNC.
1002 TUNER
SK1
SK20
M1
M2
M6
M7
M8
M9
M13
M14
M16
M17
M20
T500mA
T400mA
1652 T2A
800V
25V
110V
0.6V
210V
33V
44V
22V
140V
28V
1.4V
-120V
-18V
-24V
-3V
1.9V
3.1V
420mV
76mV
110mV
390mV
2V

2-7


SK1
SK 21
M14
M16
M17
M20
BU5
1262
7260
5261
5259
5270
5271
1901
1652
T2A
7840
7730
7732
7731
7727
7728
7729
7737
7736
7735
7842
7912
7871
7677
7674
7673
7669
7702
7701
7707
7880
7878
7876
7875
7896
7960
7520
7521
7514
7511
7512
7513
7510
7509
7508
7507
7506
7505
7504
7503
7502
7501
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7499
7498
7497
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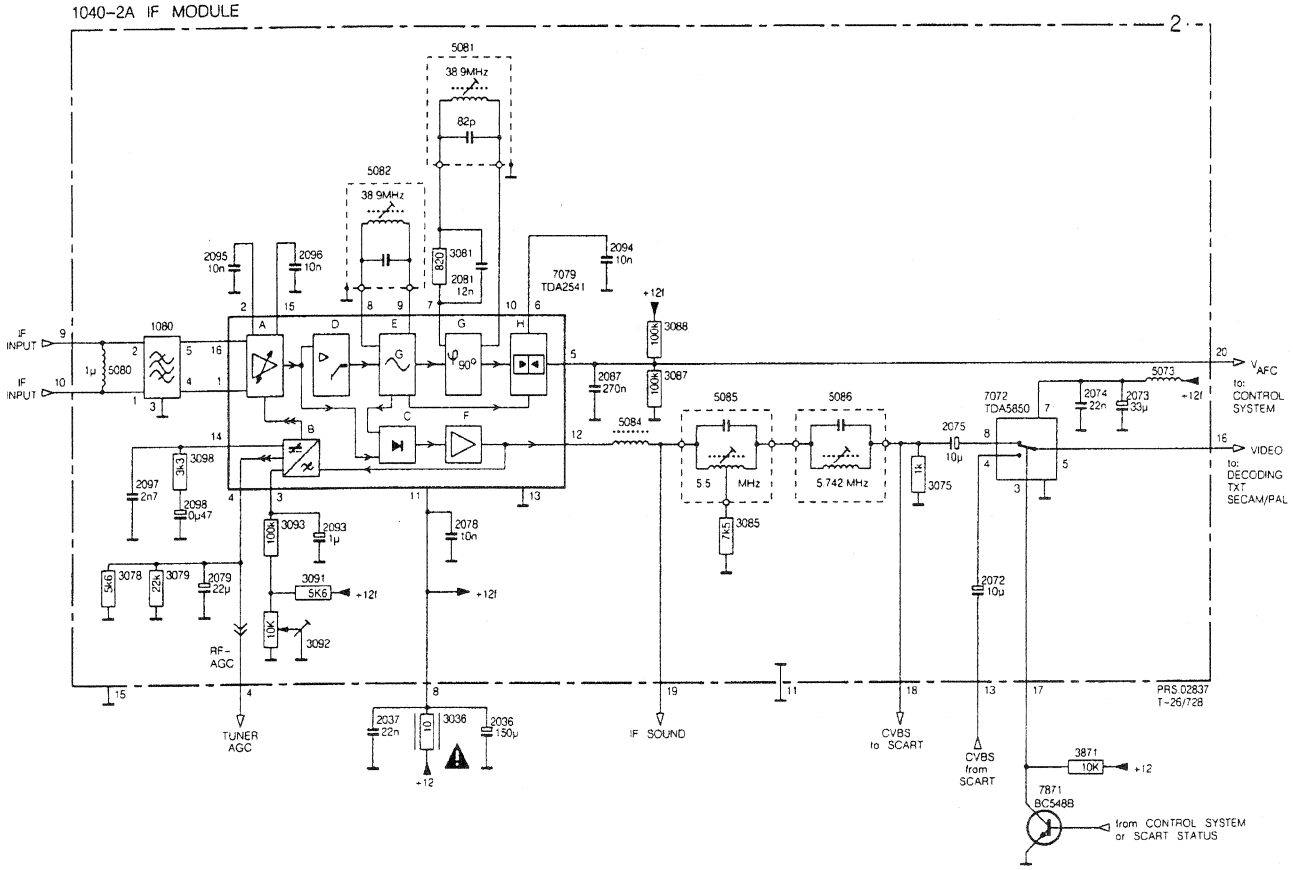
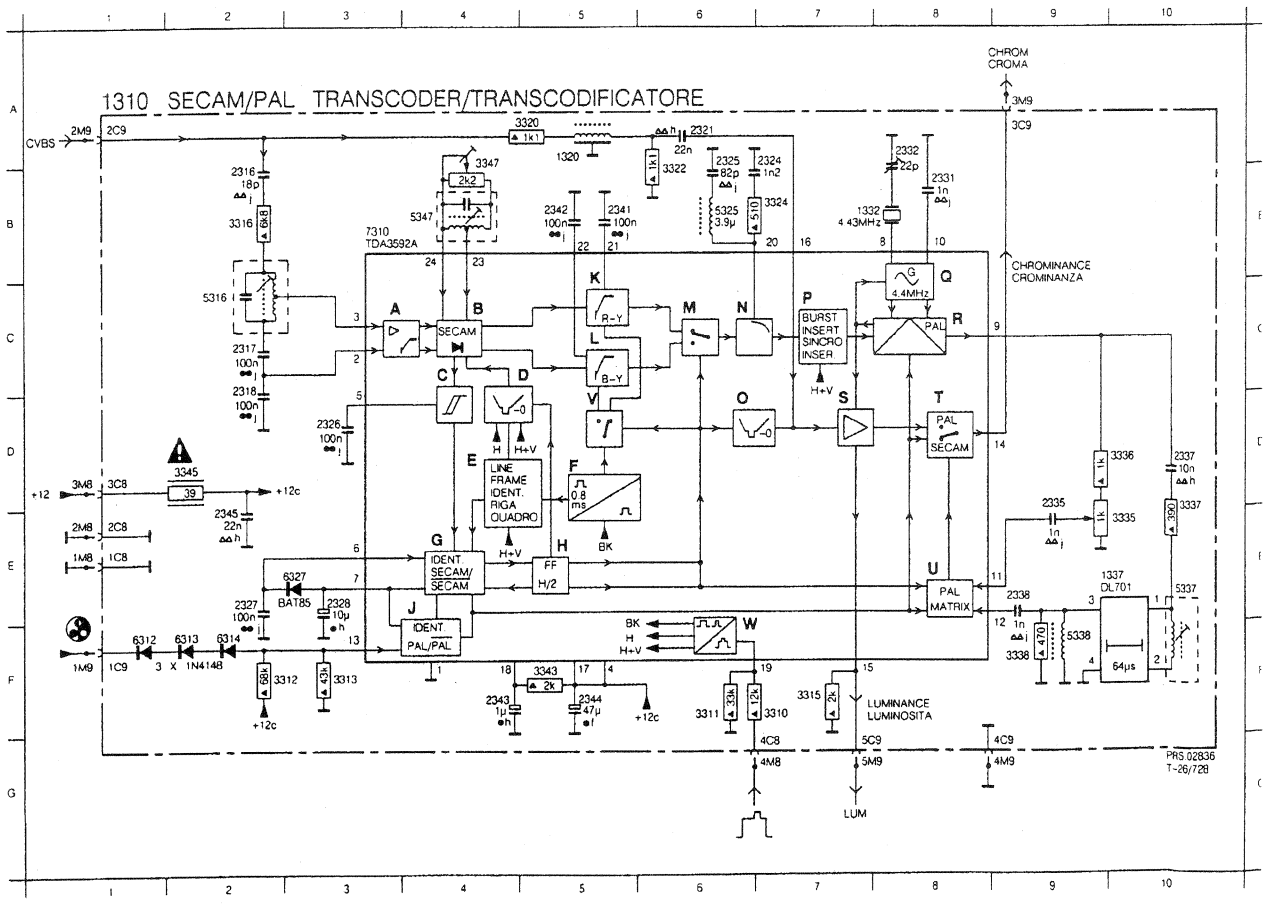
2-8

IF, SECAM/PAL diagram E

1040-2A IF MODULE



1320	A 5	2317	C 2	2325	A 6	2331	B 8	2338	E 9	2344	F 5	3311	F 6	3316	B 2	3336	D10	3345	D 2	5337	E10	6313	F 2
1332	B 7	2318	C 2	2326	D 3	2332	A 8	2341	B 5	2345	E 2	3312	F 3	3320	A 5	3337	D10	3347	A 4	5338	F 9	6314	F 2
1337	E10	2321	A 6	2327	E 2	2335	D 9	2342	B 5	3222	B 6	3313	F 3	3324	B 7	3338	F 9	5316	C 2	5347	B 4	6327	E 3
2316	B 2	2324	A 7	2328	E 3	2337	D10	2343	F 4	3310	F 7	3315	F 7	3335	E10	3343	F 5	5325	B 6	6312	F 1	7310	B 3



SYMBOLS USED IN CIRCUIT DIAGRAMS

SYMBOL	TYPE	$+P_{70°amb}$	TOLERANCE	SERIES
	SFR16T	0.5	1E – 3M 5%	E24
	SFR25H	0.5	1E – 10M 5%	E24
	MRS25	0.6	1E – 1M 1%	E24
	MR30	0.5	1E – 1M 1%(2%)	E24
	VR37	0.5	220K – 33M 5%	E24
	PR37	1.6	1E – 1M 5%	E24
	VR68	1	100K – 68M 5%	E24
	MRS 16T	0.4	10R – 100K	E24/E96

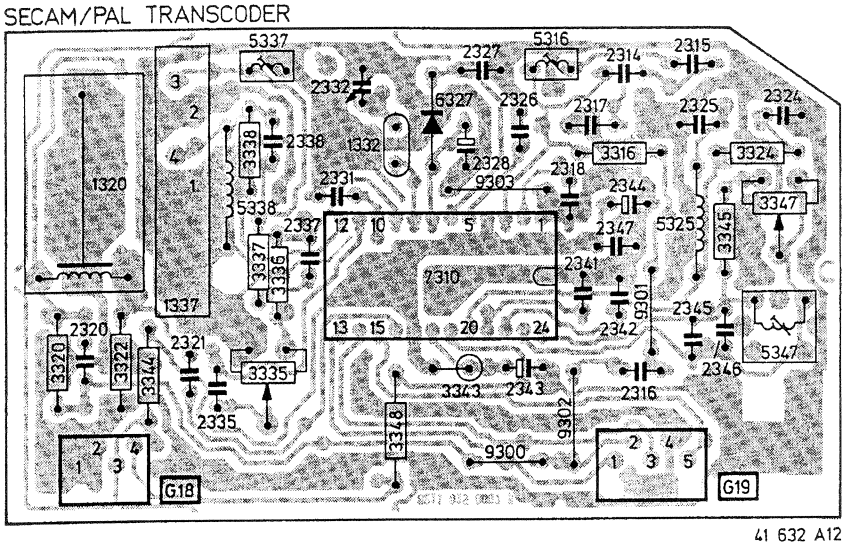
SYMBOL	TYPE	VOLTAGE DC	TOLERANCE
●●*	POLYESTERFLATFOIL	SEE NOTE	10%
△△*	PLATE CERAMIC	SEE NOTE	DEPENDING ON CAPACITY
○*	ELCO MINIATURE SINGLE	SEE NOTE	−10 + 50%
●*	ELCO SINGLE ENDED	SEE NOTE	± 20%

NOTE

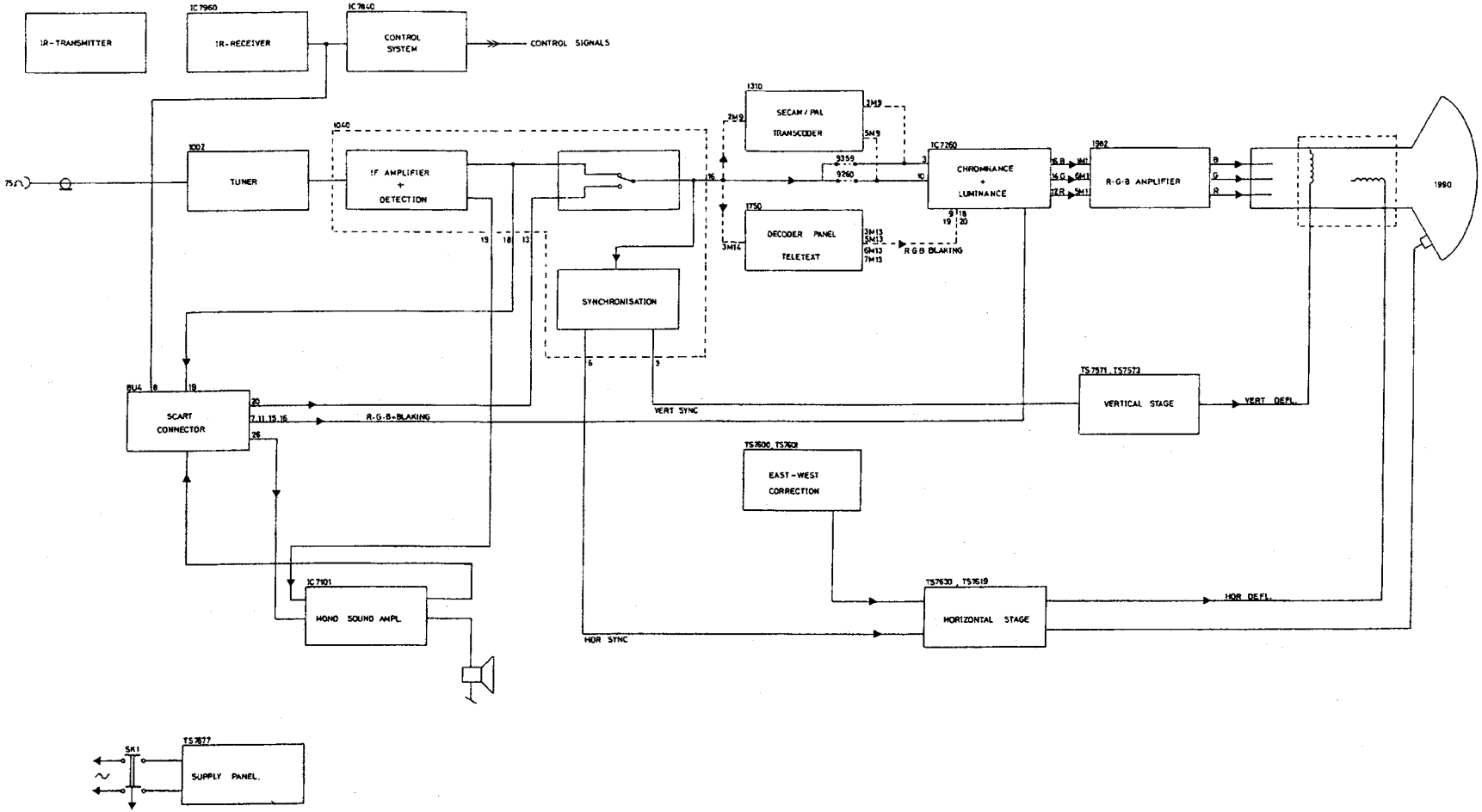
*

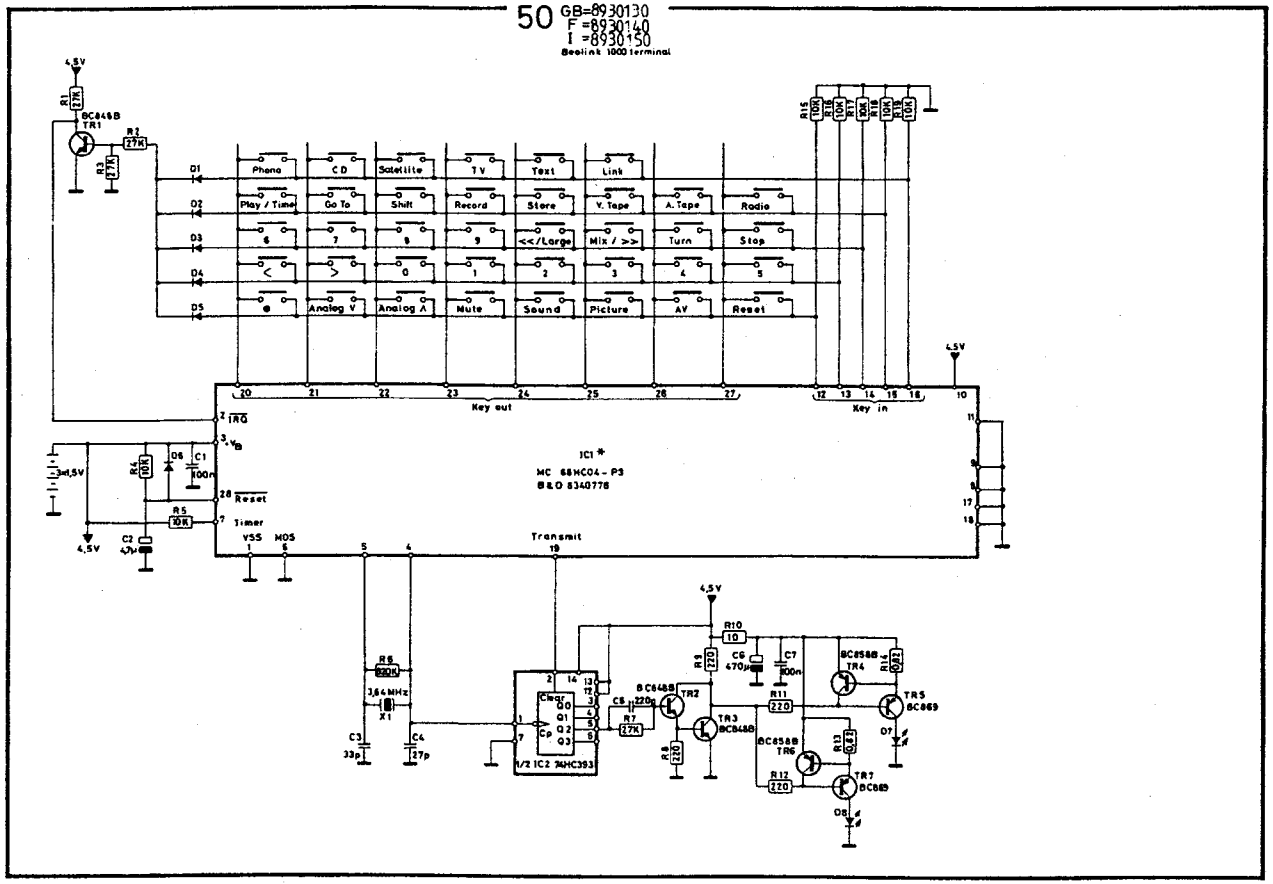
a = 2.5V
b = 4V
c = 6.3V
d = 10V
e = 16V
f = 25V
g = 40V
h = 63V
j = 100V
l = 125V
m = 150V
n = 160V
q = 200V
r = 250V
s = 300V
t = 350V
u = 400V
v = 500V
w = 630V
x = 1000V
z = 1600V
A = 16V
B = 6V
C = 12V
D = 15V
E = 20V
F = 35V
G = 50V
H = 75V
I = 80V

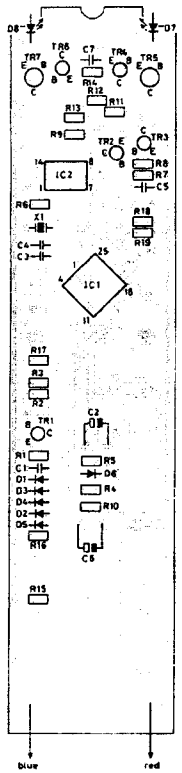
SECAM/PAL TRANSCODER



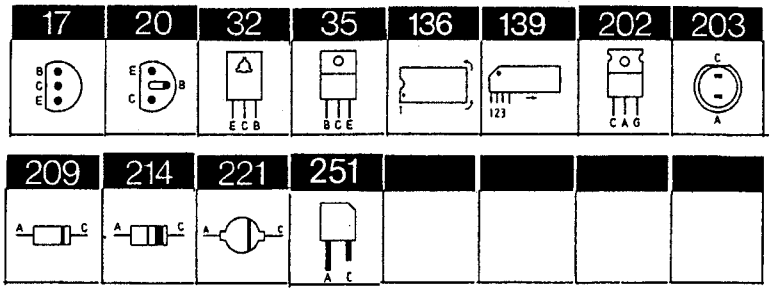
BLOCKDIAGRAM




50 GB=8930130
F =8930140
I =8930150
Beolink 1000 terminal
Phono
CD
Satellite
TV
Text
Link
Play / Time
Go To
Shift
Record
Store
V. Tape
A. Tape
Radio
Analog V
Analog A
Mute
Sound
Picture
AV
Reset
Key out
Key in
IC1 *
MC 68HC04 - P3
B&O 8340778
Reset
Timer
Transmit
3,84MHz
1/2 IC2 74HC393


blue
red

LIST OF ELECTRICAL PARTS



Resistors not mentioned are standard on page 3-7

Δ indicates that static electricity may destroy the component

PCB 01, 8003967
PCB 09, 8003968 GB
MAINS BOARD

TR7070	8320108	**20**	BC 548B
TR7106	8320104	**20**	BC 558B
TR7512	8320108	**20**	BC 548B
TR7514	8320108	**20**	BC 548B
TR7516	8320108	**20**	BC 548B
TR7520-7521	8320285	**20**	BC 548C
TR7530	8320108	**20**	BC 548B
TR7571	8320773	**32**	BD 939
TR7573	8320773	**32**	BD 939
TR7600	8320285	**20**	BC 548C
TR7601	8320640	**17**	BC 636
TR7619	8320774	**35**	BUT 11AF
TR7630	8320771	**17**	BF 483
TR7669	8330224	**136**	CNX 62
TR7673	8320097	**20**	BC 547B
TR7674	8320331	**20**	BC 328-25
TR7677	8320774	**35**	BUT 11AF
TR7701-7702	8320108	**20**	BC 548B
TR7727	8320242	**20**	BC 556B
TR7730	8320775	**35**	BD 943
TR7732	8320104	**20**	BC 558B
TR7736	8320285	**20**	BC 548C
TR7842	8320285	**20**	BC 548C
TR7871	8320108	**20**	BC 548B
TR7876	8320331	**20**	BC 328-25
TR7878	8320331	**20**	BC 328-25
TR7912	8320108	**20**	BC 548B

IC7101	8341084	**136**	TDA 8190
IC7260	8341085	**136**	TDA 3561A/N7
IC7840Δ	8341086	**136**	TMP 47C432AP-8192
IC7865	8340654	**139**	LA 7910
IC7960	8341021	**136**	TDA 3047

D6010	8341083	**209**	33V
D6100	8300486	**214**	BAX14
D6102	8300486	**214**	BAX14
D6106	8300058	**209**	1N4148
D6190	8300058	**209**	1N4148
D6572-6574	8300409	**214**	BAV 20
D6609-6610	8300507	**221**	BYV 27-156
D6623	8300507	**221**	BYV 27-156
D6638	8300507	**221**	BYV 27-156
D6657-6660	8300601	**209**	1N5061
D6664-6665	8300058	**209**	1N4148
D6666	8300326	**209**	11V 5% 0.4W
D6667	8300058	**209**	1N4148
D6670	8300058	**209**	1N 4148
D6674	8300507	**221**	BYV 27-150
D6675	8300486	**214**	BAX 14
D6676-6677	8300058	**209**	1N 4148
D6679	8300507	**221**	BYV 27-150
D6690	8300507	**221**	BYV 27-150
D6694	8300486	**214**	BAX 14
D6695	8300342	**221**	BYW 95B
D6696	8300602	**202**	BT 151-500R
D6697	8300350	**209**	36V 2% 0.4W
D6698-6699	8300321	**209**	33V 5% 0.4W
D6700	8300053	**209**	15V 5% 0.4W
D6701	8300058	**209**	1N 4148
D6702	8300201	**209**	6.2V 5% 0.4W
D6726	8300603	**202**	SF2D41
D6727	8300604	**214**	BAV 21
D6730	8300058	**209**	1N 4148
D6731	8300128	**209**	5.6V 5% 0.4W
D6732	8300036	**209**	4.7V 5% 0.4W
D6733	8300409	**214**	BAV 20
D6875	8300058	**209**	1N 4148
D6896	8330039	**203**	red
D6901	8300058	**209**	1N 4148
D6934	8300058	**209**	1N 4148
D6960	8330223	**251**	BPW50
D6967	8300058	**209**	1N 4148

R3002	5020756		10Ω 5% 0.3W
R3036	5021038		4.7Ω 5%
R3262	5020401		510Ω 1% 1/8W
R3274	5370050		1kΩ 20% 0.1W
R3275	5020756		10Ω 5% 0,3W
R3284	5020161		75Ω 1% 1/4W
R3285	5020161		75Ω 1% 1/4W
R3286	5020161		75Ω 1% 1/4W
R3287	5020161		75Ω 1% 1/4W
R3495	5020236		20kΩ 1% 1/4W
R3501	5020223		6.2kΩ 1% 1/4W
R3514	5020236		20kΩ 1% 1/4W
R3517	5020223		6.2kΩ 1% 1/4W
R3525	5020161		75Ω 1% 1/4W
R3573	5021042		22Ω 0.5W
R3575	5020239		24.3kΩ 1% 1/4W
R3576	5020236		20kΩ 1% 1/4W
R3577	5020327		1.27kΩ 1% 1/4W
R3578	5011508		22Ω 1% 1/4W
R3580	5370341		100Ω 20% 0.1W
R3598	5370058		4.7kΩ 20% 0.1W
R3600	5021043		8.2Ω 20% 0.1W
R3611	5021044		1kΩ 2% 0.4W
R3623	5021043		8.2Ω 5%
R3628	5010501		430kΩ 2% 1/2W
R3629	5021045		5.6kΩ 2% 1/2W
R3638	5020755		1Ω 5% 0.33W
R3653	5021044		1kΩ 1% 0.4W

136	209							

Resistors not mentioned are standard on page 3-7

R3657	5100244	4.7Ω 5% 7W	R3703	5020524	91kΩ 1% 1/8W
R3662	5020280	357kΩ 1% 1/4W	R3837	5020422	24kΩ 1% 1/8W
R3664	5020749	825Ω 1% 0.4W	R3841	5020164	432Ω 1% 1/4W
R3665	5021038	4.7Ω 5%	R3842	5020432	220kΩ 1% 1/8W
R3666	5020164	432Ω 1% 1/4W	R3849	5020095	13.3kΩ 1% 1/4W
R3675	5011009	47Ω 5% 1/2W	R3852	5020231	11.3kΩ 1% 1/4W
R3679	5100348	80Ω 5% 5W	R3858	5020564	6.2kΩ 2% 0.4W
R3694	5020756	10Ω 5% 0.3W	R3865	5020744	39Ω 5% 0.33W
R3696	5021046	31.6kΩ 1% 0.3W	R3943	5020132	43.2kΩ 1% 1/4W
R3699	5020894	2.03kΩ 1% 1/4W	R3944	5300130	5kΩ 1% 1/4W
R3700	5370050	1kΩ 20% 0.1W	R3967	5020757	470Ω 5% 0.3W
R3701	5010992	160Ω 5% 0.33W			

C2002	4200614	150µF 20% 16V	C2577	4010163	22nF 100V
C2003	4200302	1µF 20% 63V	C2578	4201081	10µF -10+100% 63V
C2004	4200302	1µF 20% 63V	C2580	4200789	220µF 20% 100V
C2006	4200302	1µF 20% 63V	C2594	4130264	68nF 10% 63V
C2007	4130314	180nF 10% 63V	C2596	4130216	22nF 10% 63V
C2010	4100170	1.5nF 1% 63V	C2600	4000111	22pF 2% 63V
C2036	4200614	150µF 20% 16V	C2601	4200322	4.7µF -10+50% 63V
C2037	4130193	22nF 20% 63V	C2608	4200680	4.7µF 10% 35V
C2101	4130193	22nF 20% 63V	C2609	4130201	39nF 250V
C2102	4200704	470µF 20% 25V	C2610	4100287	8.2nF 2kV
C2103	4200322	4.7µF -10+50% 63V	C2611	4100288	470nF 200V
C2104	4130220	10nF 5% 63V	C2619	4010212	1.5nF 1kV
C2105	4130179	100nF 20% 63V	C2623	4200635	4.7µF 20% 16V
C2107	4000020	4.7pF 63V	C2629	4110021	100nF 2.5% 160V
C2111	4130352	120nF 10% 63V	C2630	4102034	330pF 5% 160V
C2112	4130220	10nF 5% 63V	C2632	4100045	560pF 5% 63V
C2113	4200704	470µF 20% 25V	C2633	4102034	330pF 5% 160V
C2114	4200313	2.2µF -10+100% 63V	C2637	4100217	470pF 1% 63V
C2115	4130215	220nF 20% 63V	C2638	4200395	470µF -10+50% 16V
C2118	4200308	1µF -10+100% 63V	C2652	4130127	470nF 10% 630V
C2124	4130220	10nF 5% 63V	C2655	4000025	15pF 5% 63V
C2259	4000069	100pF 5% 63V	C2656	4000025	15pF 5% 63V
C2260	4130193	22nF 20% 63V	C2657	4021002	2.2nF -20+50% 1kV
C2263	4130179	100nF 20% 63V	C2658	4021002	2.2nF -20+50% 1kV
C2264	4200322	4.7µF -10+50% 63V	C2659	4021002	2.2nF -20+50% 1kV
C2265	4130179	100nF 20% 63V	C2660	4021002	2.2nF -20+50% 1kV
C2266	4130179	100nF 20% 63V	C2661	4130211	33nF 10% 250V
C2267	4340002	2-22pF	C2663	4200801	20pF 5% 630V
C2270	4130220	10nF 5% 63V	C2667	4130302	33nF 10% 63V
C2271	4000183	22pF 5% 63V	C2668	4130264	68nF 10% 63V
C2274	4130220	10nF 5% 63V	C2671	4130239	3.3µF 10% 63V
C2275	4200727	220µF 20% 16V	C2675	4130264	68nF 10% 63V
C2276	4130193	22nF 20% 63V	C2677	4130181	680nF 5% 100V
C2278	4130193	22nF 20% 63V	C2678	4010213	470pF 1kV
C2279	4200308	1µF -10+100% 63V	C2679	4010085	1nF -20+50% 2kV
C2281	4200313	2.2µF -10+100% 63V	C2680	4010214	680pF 1kV
C2282	4130215	220nF 20% 63V	C2682	4000004	33pF 10% 400V
C2283	4130379	270nF 10% 63V	C2690	4100217	470pF 1% 500V
C2285	4130179	100nF 20% 63V	C2691	4200604	330µF 40V
C2286	4130179	100nF 20% 63V	C2694	4200403	100µF -10+100% 25V
C2287	4130179	100nF 20% 63V	C2695	4104023	2.2nF 10% 630V
C2290	4130179	100nF 20% 63V	C2696	4200802	47µF 200V
C2291	4130179	100nF 20% 63V	C2697	4200802	47µF 200V
C2292	4130179	100nF 20% 63V	C2699	4130214	10nF 20% 63V
C2295	4201081	10µF -10+100% 63V	C2700	4200168	4.7µF -10+100% 63V
C2495	4130088	33nF 10% 250V	C2703	4200749	330µF 25V
C2502	4200308	1µF -10+100% 63V	C2704	4010061	2.2nF 10% 63V
C2503	4130302	33nF 10% 63V	C2726	4100217	470pF 500V
C2521	4200308	1µF -10+100% 63V	C2729	4201041	6.8µF -20+50% 40V
C2522	4200308	1µF -10+100% 63V	C2730	4200121	22µF -10+100% 40V
C2523	4130210	47nF 20% 63V	C2733	4010024	470pF 10% 63V
C2572	4100170	1.5nF 1% 63V	C2735	4130215	220nF 20% 63V

C2834	4130171	330nF 20% 63V	C2935	4000102	27pF 5% 63V
C2836	4130171	330nF 20% 63V	C2960	4130420	150pF 1% 250V
C2843	4000069	100pF 5% 63V	C2961	4130371	8.2nF 5%
C2848	4200627	68µF -20+50% 63V	C2964	4130371	8.2nF 5%
C2853	4130228	470nF 20% 63V	C2965	4130210	47nF 20% 63V
C2858	4200308	1µF -10+100% 63V	C2966	4130214	10µF 20% 63V
C2865	4201081	10µF -10+100% 63V	C2967	4200478	100µF 20% 10V
C2875	4200613	330µF 20% 16V	C2970	4130407	390nF 63V
C2901	4130193	22nF 20% 63V	C2971	4100241	6.8nF 5% 63V
C2908	4200308	1µF 20% 63V	C2972	4104016	820pF 5% 630V
C2834	4000100	10pF p100 5% 63V			

L5108	8020676	Coil 12uH	L5642	8020685	Coil 27uH 7.5%
L5259	8020677	Coil 10uH	L5653-5654	8020685	Coil 27uH 7.5%
L5261	8020678	Coil 37uH			
L5270	8020679	Coil 10uH	L5655	8020686	Assy
L5271	8020680	Coil 47uH	L5674	8020687	Coil 6.8uH 10%
L5600	8020681	Coil 270uH	L5697	8020685	Coil 27uH 7.5%
L5608	8020682	Assy	L5914	8020688	Coil 15uH 10%
L5611	8020683	Coil	L5960	8020689	Coil 640uH 10%
L5638	8020684	Coil 82uH 7.5%	L5972	8020690	Coil 150uH 10%

T5620	8013414	Trafo	T5763	8013416	Trafo
T5629	8013415	Trafo			

B1901	8700023	Batteri 2,4V

BP1103	8030033	6.0 MHz (only GB)	BP1103	8030045	5.5 MHz

DL1270	6240020	Delay Line	DL1262	6240027	Delay Line

DP7880	8330225	LN 524RAP-PH display

X1934	8090003	Crystal 4 MHz	X1267	8090005	Crystal 8.86 MHz

F1580	6600086	0.2AT	F1652	6600066	2AT
F1640	6600087	630mAT	F1690	6600088	4AT

PCB 02, 8003964 SYNC/IF PANEL PAL B/G
PCB 05, 8003963 SYNC/IF PANEL PAL I

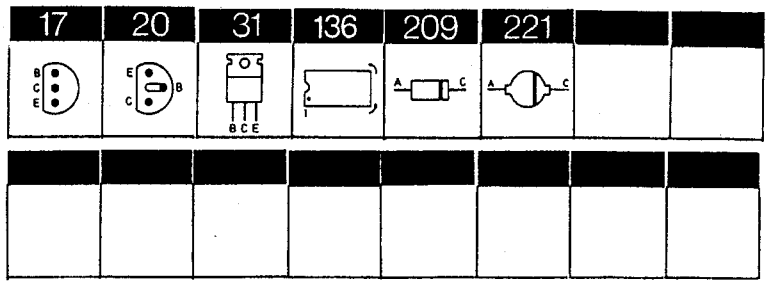
TR7042	8320108	**209** BC 548B	TR7066	8320108	**209** BC 548B

IC7038	8341087	**136** TDA 2579/N5	IC7079	8341089	**136** TDA 2541
IC7072	8341088	**136** TDA 5850			

D6065	8300058	**209** 1N 4148	D6067	8300404	**209** 3.9V

R3038	5370225	47kΩ 10% 0.1W	R3092	5370074	10kΩ 20% 0.1W
R3055	5370074	10kΩ 20% 0.1W			

C2038	4130179	100nF 20% 63V	C2067	4201081	10µF -10+100% 63V
C2039	4130179	100nF 20% 63V	C2072	4201081	10µF -10+100% 63V
C2044	4200308	1µF -10+100% 63V	C2073	4200220	33µF 20% 16V
C2045	4200121	22nF -10+100% 40V	C2074	4130193	22nF 20% 63V
C2046	4130193	22nF 20% 63V	C2075	4201081	10µF -10+100% 63V
C2048	4130171	330nF 20% 63V	C2078	4130214	10nF 20% 63V
C2049	4130171	330nF 20% 63V	C2079	4200121	22µF -10+100% 40V
C2051	4000055	47pF 2% 63V	C2081	4000075	12pF 2% 63V
C2054	4010167	2.7nF 10% 100V	C2087	4130295	270nF 63V
C2056	4200168	4.7µF -10+100% 63V	C2093	4200308	1µF -10+100% 63V
C2057	4130179	100nF 20% 63V	C2094	4130214	10nF 20% 63V
C2060	4130088	33nF 10% 250V	C2095	4130214	10nF 20% 63V
C2064	4130214	10nF 20% 63V	C2097	4010167	2.7nF 10% 100V
C2065	4200727	220µF 20% 16V	C2098	4200476	0.47µF 20% 50V
C2066	4010063	4.7nF 10% 63V			



Resistors not mentioned are standard on page 3-7

L5068	8020691	Coil 100uH 10%		L5084	8020695	Coil 12uH 10%	
L5080	8020692	Coil 1uH 20%		L5085	8020696	Coil 10.1uH 6%	
L5081	8020693	Coil 0.2uH 6%		L5086	8020697	Coil 4.26 6%	
L5082	8020694	Coil 0.24uH 6%					

SWF1080	8030148	OFW G 1956	

PCB 03, 8003969
VIDEO OUTPUT

TR7406	8320771	**17**	BF 483	TR7446	8320771	**17**	BF 483
TR7426	8320771	**17**	BF 483	TR7472	8320104	**20**	BC 558B

D6410	8300058	**209**	1N 4148	D6450	8300058	**209**	1N 4148
D6430	8300058	**209**	1N 4148				

R3406	5020323	12 kΩ 5% 4W		R3446	5020323	12 kΩ 5% 4W	
R3411	5020949	1.1 kΩ 1% 1/4W		R3451	5020949	1.1 kΩ 1% 1/4W	
R3412	5370141	1 kΩ 20% 0.1W		R3452	5370141	1 kΩ 20% 0.1W	
R3421	5370072	2.2 kΩ 20% 0.1W		R3470	5020834	4.3 kΩ 1% 1/4W	
R3426	5020323	12 kΩ 5% 4W		R3471	5020949	1.1 kΩ 1% 1/4W	
R3431	5020949	1.1 kΩ 1% 1/4W		R3472	5370141	1 kΩ 20% 0.1W	
R3432	5370141	1 kΩ 20% 0.1W		R3473	5020848	1 Ω 10% 0.35W	
R3441	5370072	2.2 kΩ 20% 0.1W					

C2410	4010081	270pF 10% 63V		C2450	4010081	270pF 10% 63V	
C2430	4010081	270pF 10% 63V		C2475	4130088	33nF 10% 250V	

L5473	8020673	Coil 15uH

PCB 04, 8003965
MUTE PANEL

TR7508	8320108	**20**	BC 548B	TR7510	8320104	**20**	BC 548B

D6508-6510	8300058	**209**	1N 4148

C2506	4130193	22nF 20% 63V		C2509	4130214	10nF 20% 63V	
C2508	4010027	1nF 10% 63V		C2510	4130314	180nF 10% 63V	

PCB 10, 8003918
(S-GB-D character)
PCB 12, 8003919
(F-I-D character)
TELETEXT

TR7782	8320108	**20**	BC 548B	TR7815	8320104	**20**	BC 558B (S-GB-D character)
TR7784	8320108	**20**	BC 548B				
TR7806	8320658	**31**	BD 945				
TR7813	8320108	**20**	BC 548B	TR7817	8320108	**20**	BC 548B (S-GB-D character)
TR7814	8320108	**20**	BC 548B				

IC7766	8341056	**136**	2016BP-15	IC7770	8341077	**136**	SAA5241A (GB-D-S character)
IC7770	8341061	**136**	SAA5241B (F-I-D character)				

D6773	8300496	**209** ZPD 7V5	D6804	8300507	**221** BYV 27-150
D6775	8300058	**209** 1N 4148	D6807	8300128	**209** BZX 83C 5V6
D6777	8300058	**209** 1N 4148	D6810	8300058	**209** 1N 4148
D6781	8300058	**209** 1N 4148			
R3784	5020161	75 Ω 1% 1/4W	R3815	5020161	75 Ω 1% 1/4W
R3806	5020360	110 Ω 1% 1/4W			(S-GB-D character)
R3808	5021038	2.7 R 1% 1/4W			

C2762	4010029	180pF 10% 63V	C2797	4130226	220nF 10% 63V
C2763	4010029	180pF 10% 63V	C2798	4130223	47nF 10% 63V
C2766	4130261	100nF 5% 63V	C2799	4200487	10µF 20% 50V
C2770	4130261	100nF 5% 63V	C2800	4130223	47nF 10% 63V
C2771	4130220	10nF 5% 63V	C2801	4200313	2.2µF -10+100% 63V
C2772	4010064	560pF 10% 63V	C2802	4340002	1.8-22pF
C2780	4130261	100nF 5% 63V	C2803	4000008	18pF 5% 63V
C2782	4000102	27pF 5% 63V	C2804	4200122	220µF -10+100% 10V
C2784	4130261	100nF 5% 63V	C2806	4200562	15µF 20% 16V
C2785	4130261	100nF 5% 63V	C2807	4200133	100µF -10+100% 10V
C2786	4000102	27pF 5% 63V	C2808	4200403	100µF -10+100% 25V
C2787	4000182	15pF 5% 63V	C2810	4130261	100nF 5% 63V
C2788	4010027	1nF 10% 63V	C2815	4200313	2.2µF -10+100% 63V
C2789	4010024	470pF 10% 63V			(S-GB-D character)
C2790	4130216	22nF 10% 63V	C2820	4000180	120pF 5% 63V
C2791	4010081	270pF 10% 63V			(S-GB-D character)
C2792	4003128	100pF 5% 63V	C2824	4200487	10µF 20% 50V
C2793	4010021	220pF 10% 63V			(S-GB-D character)
C2794	4130225	150nF 10% 63V	C2825	4130261	100nF 5% 63V
C2795	4130352	120nF 10% 63V			(S-GB-D character)
C2796	4000182	15pF 5% 63V			

L5766	8020659	Coil 10uH			
L5786	8020673	Coil 15uH	L5804	8020674	Coil 3.3uH

X1796	8090041	Crystal 13.875 MHz	X1802	8030141	Crystal 6 MHz

PCB 11, 8003920
PAL/SECAM DECODER

IC7310	8341090	TDA 3529A			

R3320	5020949	1.1kΩ 1% 1/4W	R3315	5020894	2.03kΩ 1% 1/4W
R3322	5020949	1.1kΩ 1% 1/4W	R3335	5370050	1kΩ 20% 0.1W
R3324	5020401	510Ω 1% 1/8W	R3345	5020744	39Ω 5% 0.33W
R3313	5010781	43kΩ 2% 1/8W	R3347	5370006	2.2kΩ 20% 0.1W

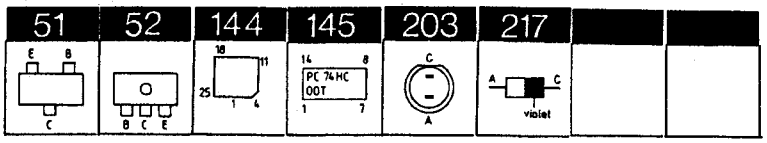
C2316	4000081	18pF 5% 63V	C2332	4340002	2-22pF
C2317	4130179	100nF 20% 63V	C2335	4100171	1nF 1% 63V
C2318	4130179	100nF 20% 63V	C2337	4130214	10nF 20% 63V
C2321	4130193	22nF 20% 63V	C2338	4100171	1nF 1% 63V
C2324	4010095	1.2nF 50V	C2341	4130179	100nF 20% 63V
C2325	4000199	82pF 5% 63V	C2342	4130179	100nF 20% 63V
C2326	4130179	100nF 20% 63V	C2343	4200308	1µF -10+100% 63V
C2327	4130179	100nF 20% 63V	C2344	4200483	47µF 20% 16V
C2328	4200431	10µF 20% 16V	C2345	4130193	22nF 20% 63V
C2331	4100171	1nF 1% 63V			

L5316	8020698	Coil	L5338	8020701	Coil
L5325	8020699	Coil 3.9uH	L5347	8020700	Coil
L5337	8020702	Coil			

DL1320	6240028	450n	DL1337	6240020	64u sec.

X1332	8090001	Crystal 4.43 MHz

Bang & Olufsen



Resistors not mentioned are standard on page 3-7

Δ indicates that static electricity may destroy the component
* Specially selected or adapted sample

PCB50, 8003894
Beolink 1000,
type 3013/3014/3015

TR1-3	8320615	**51**	BC 848B	TR6	8320616	**51**	BC 858B
TR4	8320616	**51**	BC 858B	TR7	8320684	**52**	BC 869
TR5	8320684	**52**	BC 869				
IC1*Δ	8340776	**144**	68 HC04 P3	IC2Δ	8340830	**145**	74 HC 393
D1-6	8300482	**217**	LL4148/BAS32	D7-8	8330140	**203**	TSHA 5502
R13	5011281		0.82Ω 5% 1/4W	R14	5011281		0.82Ω 5% 1/4W
C1	4010166		100 nF -20+80% 50V	C5	4000321		220 pF 5% 50V
C2	4200515		4.7µF 20% 25V	C6	4200664		470µF 20% 6.3V
C3	4000239		33 pF 5% 50V	C7	4010166		100 nF -20+80% 50V
C4	4000278		27 pF 5% 50V				
X1	8030094		3.64 MHz 0.3%				

Resistors 5% 1/2 W

	X1	X10	X100	X1K	X10K	X100K	X1M	X10M
1.0		5011000	5011013	5011028	5011044	5010313	5011069	5011083
1.2	5011406	5011001	5011014	5011030	5011045	5011058	5010421	
1.5	5010727	5011002	5011015	5011031	5011046	5011059	5011071	
1.8	5010857	5010787	5011016	5011033	5011047		5011072	
2.2	5011335	5010708	5010815	5011034	5011048	5011061	5011074	
2.7		5010803	5011018	5010055	5011049	5011062	5011075	
3.3	5010255	5011007	5011019	5011037		5011063	5010381	
3.9		5010782	5011021	5010700	5011051		5010392	
4.7	5010765	5011009	5011022	5010035	5010036	5011065	5011078	
5.6		5011010	5011023	5011041		5011066	5011079	
6.8	5010874	5011011	5011024	5011042	5010810	5011067	5011080	
8.2		5011012	5011026	5011043	5010038	5011068	5011081	

Resistors 5% 1/4 W

	X1	X10	X100	X1K	X10K	X100K	X1M	X10M
1.0	5010592	5010506	5010065	5010040	5010059	5010049	5010054	5010638
1.2		5010595	5010128	5010153	5010046	5010047	5010665	
1.5	5011348	5010468	5010057	5010247	5010053	5010063	5010093	
1.8		5010822	5010362	5010066	5010135	5010072	5010791	
2.2	5010682	5010448	5010092	5010064	5010079	5010120	5010245	
2.7	5010925	5010403	5010000	5010298	5010141	5010083	5010431	
3.3		5010253	5010044	5010076	5010075	5010117	5010848	
3.9	5011377	5010622	5010070	5010069	5010060	5010073	5010714	
4.7	5010888	5010411	5010058	5010048	5010045	5010077	5011513	
5.6	5010706	5010151	5010067	5010041	5010061	5010071	5010658	
6.8	5010904	5010039	5010144	5010052	5010062	5010074		
8.2	5010880	5010056	5010068	5010154	5010091	5010505		

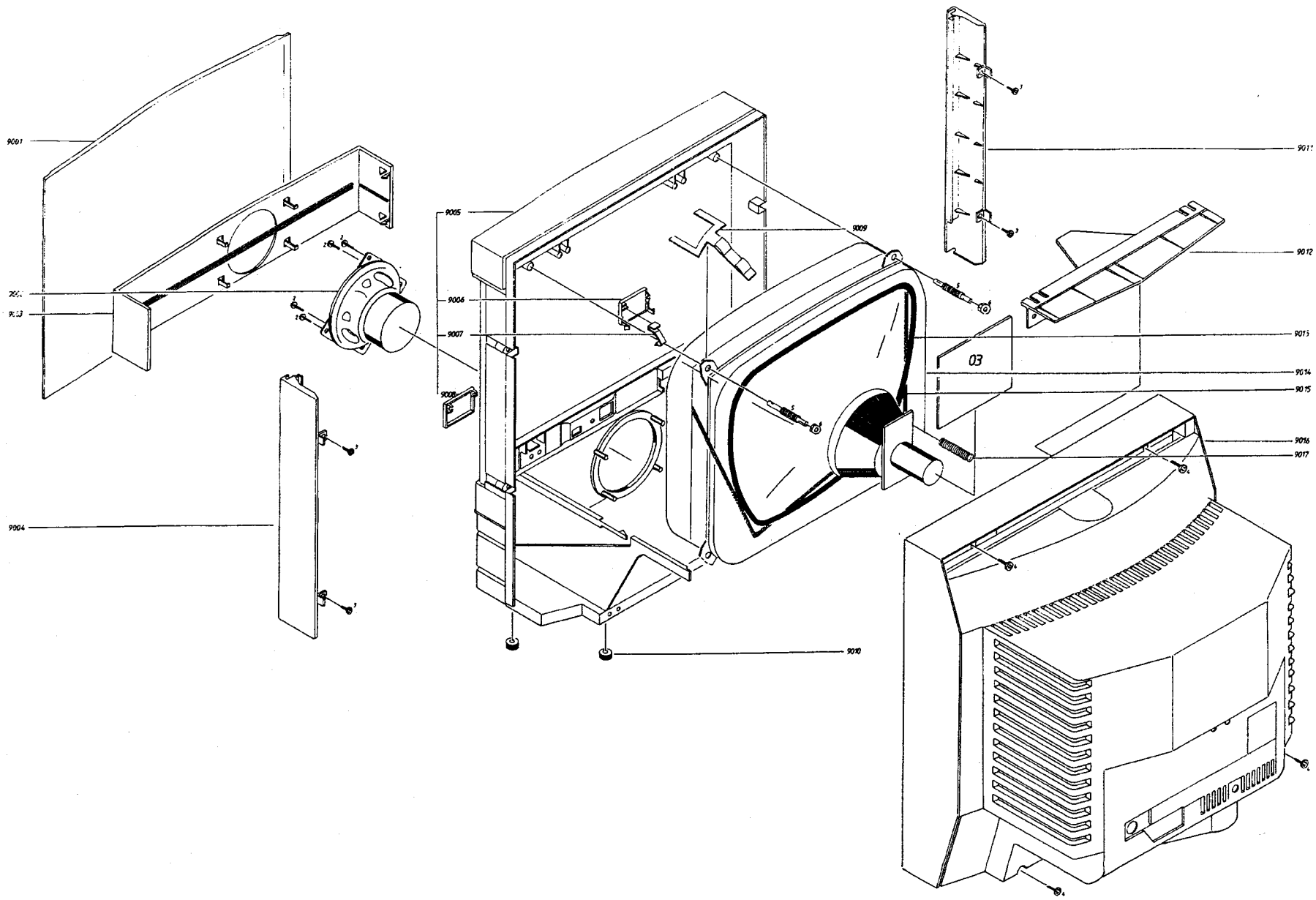
Resistors 5% 1/8 W

	X1	X10	X100	X1K	X10K	X100K	X1M	
1.0		5011464	5011357	5010816	5010935	5011440	5011459	5020875
1.2		5011351	5011084	5011442	5011338	5011341	5011175	
1.5		5011463	5011443	5011178	5011364	5011398	5011460	
1.8			5011350	5011361	5011344	5011468		
2.2	5011032	5011376	5010886	5011353	5010833	5011369	5011342	
2.7		5011471	5011355	5011362	5011366	5011370	5011478	
3.3			5011337	5010827	5011346	5011371	5011462	
3.9		5011438		5011157	5011457	5011372	5020876	
4.7	5011363	5011038	5011441	5011363	5010937	5011343		
5.6		5011412	5011358	5010885	5011166	5011340		
6.8		5011356	5011336	5010839	5011367	5011458		
8.2		5011466	5011354	5011339	5011368	5011373		

MECHANICAL PARTS LIST

9001	3450799	Contrast screen
9002	8480212	Loudspeaker
9003	3450800	Loudspeaker panel
9004	3470216	Side plate left
9005	3320127	Cabinet
	3332038	Damping block
9006	2776120	Button
9007	2819240	Spring
9008	3164722	Cover Head-Phone
9009	3152621	Bracket
9010	3103283	Foot
9011	3470225	Side plate right
9012	2530533	Top bracket
9013	8022283	Degaussing Coil
	8022284	Degaussing Coil gb
9014	8200061	Picture tube
9015	7510037	Ground current
9016	3430425	Back cover black
	3430427	Back cover red
	3430428	Back cover grey
	3430429	Back cover white
9017	2818093	Spring

03modul	8003969	Video Output


9001
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03

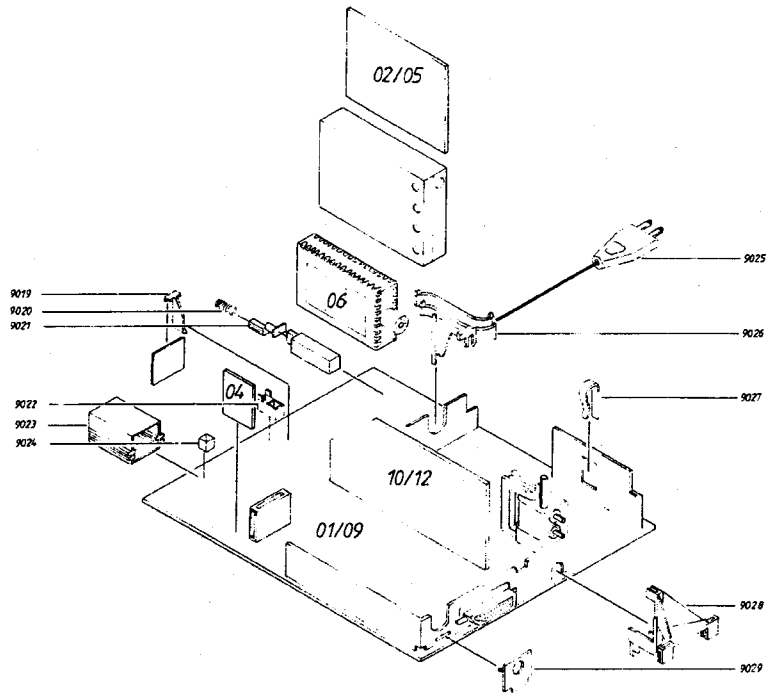
9019	3152632	Holder for display	9024	3152631	Holder for IR diode
9020	2818092	Spring	9025	6270399	Mains cord
9021	2576232	Spacer	9026	3152622	Holder
9022	3131317	Shield box for IR receiver	9027	2816236	Clips
			9028	3152629	Holder for teletext
9023	3152630	Holder	9029	3300114	Cover

01	modul8003967	Main Board
02	modul8003964	Sync/IF Pal B/G
04	modul8003965	Mute panel
05	modul8003963	Sync/IF Pal I
06	modul8050114	Tuner
09	modul8003968	Main Board GB
10	modul8003918	Teletext (S-D-GB character)
11	modul8003920	Pal/Secam Decoder
12	modul8003919	Teletext (D-F-I character)

4-3

El-chassis

Bang & Olufsen



Survey of screws and nuts for MX1500 and Terminal.

1	2034066	Screw AM 2x5	4	2019016	PT-Screw 4x16
2	2013080	PL.Screw U 2.9x9.5	5	2045000	Screw M5
3	2013134	PL.Screw 3x10	6	2380150	Nut

Parts not shown

3624027	Mounting tools	3503471	Owner's Manual SF
6275850	Cable form m1-11	3503439	Owner's Manual GB
6275851	Cable form m2-12	3503472	Owner's Manual D
6275852	Cable form 14-s16 (earth)	3503473	Owner's Manual NL
		3503474	Owner's Manual F
6275853	Cable form s21-1/s	3503494	Owner's Manual GR
6275854	Cable form m6-defl	3503475	Owner's Manual I
6273855	Cable form m7-defl	3395073	Outer carton f. Terminal
3397633	Top cushion		
3397634	Bottom cushion	3397650	Foam packing f. Terminal
3392045	Outer carton		
3503469	Owner's Manual DK	3390210	Bag f. Terminal
3503470	Owner's Manual S	8700017	Battery f. Terminal

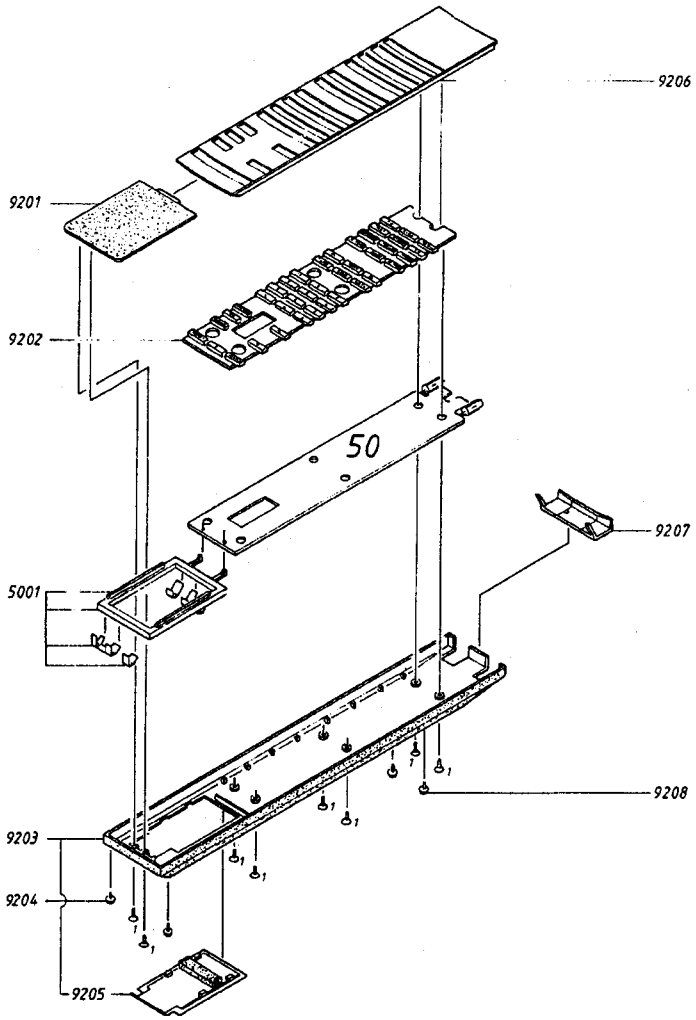
VHF Aerial, 8720029

Loop Aerial only GB, 8720030

Beolink 1000

50Modul	8003894	Remote Control
5001	3015152	Guide for Battery
	7500211	Contact spring

9201	3164688	Battery lid	9205	3164552	Battery cover
9202	2776086	Set of buttons, type 3013/3014	9206	3131297	Top type 3013
				3131298	Top type 3014
	2776087	Set of buttons, type 3015		3131299	Top type 3015
9203	3131300	Bottom	9207	3375047	Lens
9204	3103274	Plastic foot	9208	3103274	Plastic foot



01Modul 8003967 Main Board
7200066 Fuse holder
7210694 Headphone
7450085 Main switch
7400368 Push switch
7400036 Switch 3 pol SK20
7210639 21 pol. A/V
7220545 Plug 2 pol.
7220744 Plug 3 pol.
7220745 Plug 4 pol.
7220746 Plug 4 pol.
7220747 Plug 6 pol.
7220748 Plug 6 pol.
7220749 Plug 8 pol.
7220750 Plug 2 pol.
7220751 Plug 5 pol.

03Modul 8003969 Video output
7200084 Socket picture tube
7220745 Plug 4 pol.
7220748 Plug 6 pol.

10Modul 8003918 Teletext (S-D-GB character)
12Modul 8003919 Teletext (D-F-I character)
7210724 Socket 6 pol.
7210725 Socket 8 pol.

11Modul 8003920 Pal/Secam Decoder
7210726 Socket 4 pol.
7210727 Socket 5 pol.

Corrections!

Page 3-3

F1690 6600088 0.4 AT

Page 4-4

9205 3164606 Battery cover

ELEKTRISKE JUSTERINGER

A. Justeringer på hovedpanelet (fig. 4)

1. +95 V forsyningsspænding
Forbind et voltmeter (DC) mellem ben 5 på stikket M6 og jord.
Juster 3700 til en spænding på 95 V.

2. Horisontal synkronisering
Aftag skærmdækslet på IF/SYNC enhed 1040. Påfør et antennesignal.
Forbind punkt 5 og 9 på 7038 (IF/SYNC enhed).
Juster 3055 indtil billedet står stille.
Aftag forbindelsesledningen.
Monter skærmdækslet.

3. Horisontal centrering
Dette justeres ved hjælp af 3038 (IF/SYNC enhed).

4. Billedbredde
Billedbredden justeres ved hjælp af 3598.

5. Vertikal centrering
Denne justeres ved hjælp af SK20.

6. Billedhøjde
Billedhøjden justeres ved hjælp af 3580.

7. Fokusering
Denne justeres ved hjælp af fokuseringspotentiometeret på linieudgangstransformatoren (fig. 3).

8. Chroma bærebølge oscillator
Påfør en farvebjælke.
Forbind punkt 23 og 24 på IC7260.
Tilslut en 470 ohm modstand mellem punkt 6 og 1 på IC7260.
Juster 2267 således, at farvemønstret på skærmen praktisk talt står stille. Fjern modstanden og forbindelsesledningen.

9. PAL forsinkelse
Tilfør et »DEM« generatorsignal.
Indstil kontrast og lys til normal værdi og farvemætning til 3/4 af max. værdi. Juster 3274 således, at persienne-effekten i den tredje bjælke er minimal. Derefter justeres 5270 indtil presienne-effekten også er minimal i den første og den fjerde bjælke.
3274 skal evt. efterjusteres.

10. Chroma-fælde i luminanskredsløbet
Benyt et farvebjælkemønster og indstil modtagerens kontrolknapper på normal værdi.
Forbind et oscilloskop til punkt 10 på IC7250 og juster 5261 til minimal amplitude i krominanssignalet, der er indeholdt i luminanssignalet.

11. HF-AGC
Såfremt billedet fra en stærk lokal sender gengives forvrænget, skal potentiometer 3092 på IF/SYNC enhed 1040 justeres indtil billedet ikke længere er forvrænget. For at kunne justere dette, skal skærmdækslet på IF/SYNC enheden tages af.

ELECTRICAL ADJUSTMENTS

A. Adjustments to the main panel (fig. 4)

1. +95 V power supply voltage
Connect a voltmeter (DC) between pin 5 of connector M6 and ground.
Adjust 3700 for a voltage of 95 V.

2. Horizontal synchronisation
Remove the screening cap of IF/SYNC unit 1040.
Apply an aerial signal. Interconnect points 5 and 9 of item 7038 (IF/SYNC unit).
Adjust 3055 until the picture is stationary.
Remove the interconnection.
Locate the screening cap.

3. Horizontal centring
This is adjusted with 3038 (IF/SYNC unit).

4. Picture width
The picture width is adjustable with 3598.

5. Vertical centring
This is adjusted with SK20.

6. Picture height
The picture height is adjustable with 3580.

7. Focussing
This is adjusted with the focusing potentiometer on the line output transformer (fig. 3).

8. Chroma subcarrier oscillator
Apply a colour-bar pattern.
Interconnect points 23 and 24 of IC7260.
Connect a 470 Ω resistor between points 6 and 1 of IC7260.
Adjust 2267 so that colour pattern on the screen is practically stationary. Remove the resistor and the interconnection.

9. PAL delay line
Apply a generator signal "DEM". Set contrast and brightness to normal and set the saturation control to 3/4 of its range. Adjust 3274 so that the venetian-blinds effect in the 3rd bar is minimal.
Subsequently, adjust 5270 until the venetian-blinds effect in the 1st and the 4th bar is also minimal.
Readjust 3274 if necessary.

10. Chroma trap in the luminance circuit
Use the colour-bar pattern and set the receiver controls to their normal settings.
Connect an oscilloscope to point 10 of IC7260 and adjust 5261 for minimum amplitude of the chrominance signal which is situated on the various brightness of the luminance signal.

11. RF-AGC
If the picture of a strong local transmitter is reproduced distorted, adjust potentiometer 3092 on IF/SYNC unit 1040, until the picture is no longer distorted. To achieve this the screening cap of the IF/SYNC unit has to be removed.

5-1 5-1 5-1

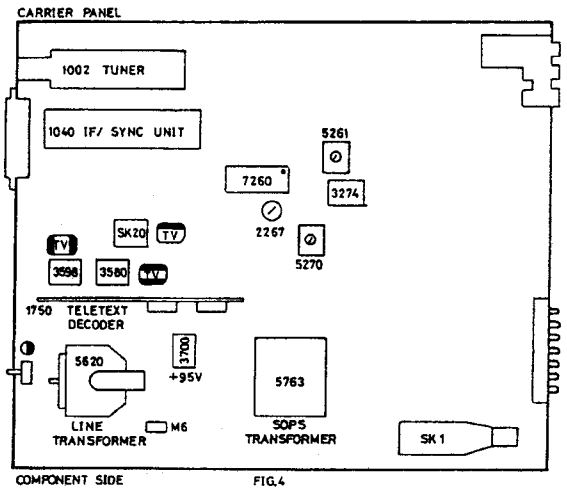


FIG.4

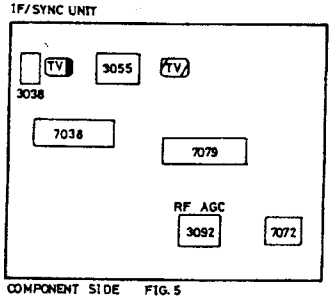
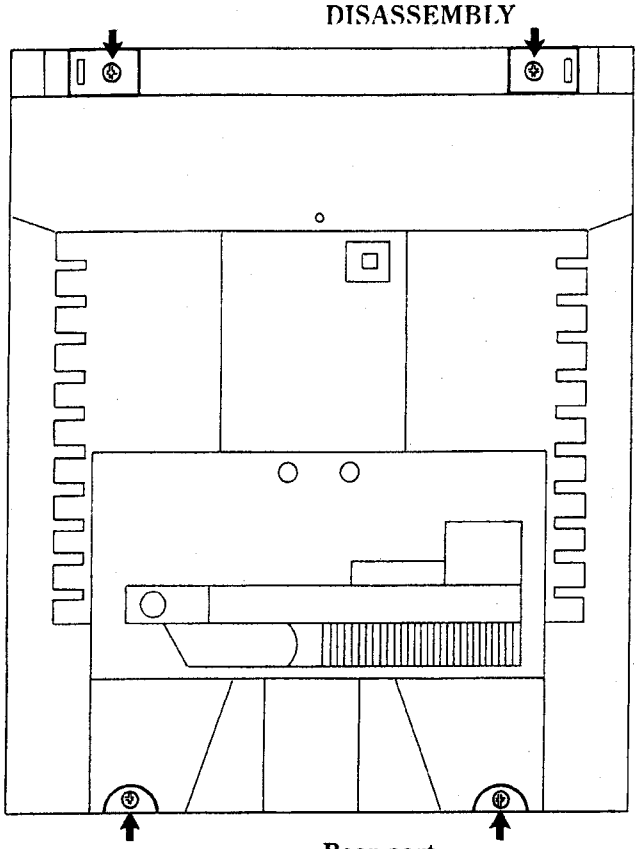


FIG. 5

Bang & Olufsen

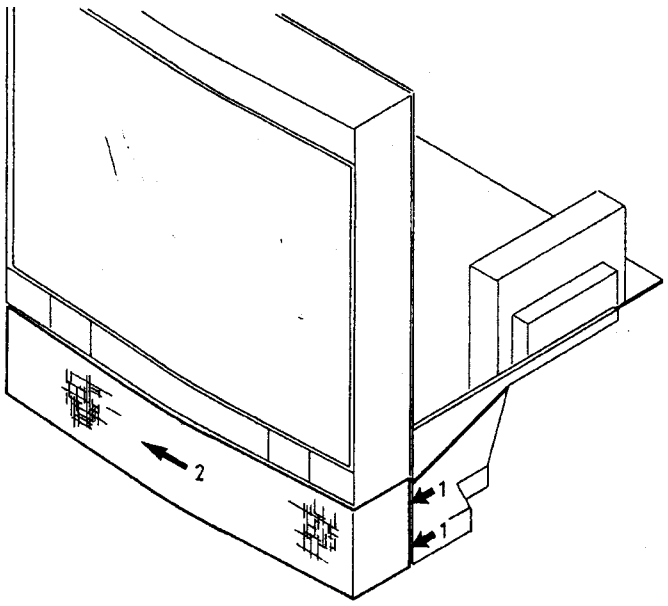
ADSKILLELSE

DISASSEMBLY



Bagpart
De fire skruer i bagparten løsnes, og bagparten fjerns.

Rear part
Loosen the four screws in the rear part and remove the rear part.



Højttalerpanel
1. Højttalerpanelet løsnes i højre side.
2. Højttalerpanelet skubbes mod venstre og fjernes.

Loudspeaker panel
1. Loosen the loudspeaker panel in the right side.
2. Push the loudspeaker panel to the left and remove it.

5-2

B. Justeringer på billedrørsprintet

1. Cut-off for billedrør
Tilfør hvidsignal.
Forbind ben 7 på IC7260 til jord.
Juster lysstyrke og kontrast indtil DC-spændingen over 3401 er 0 V.
Juster 3412, 3432 og 3452, indtil der er et sortniveau på 130 V på billedrørets sokkel.
Derefter drejes potentiometer Vg2 (fig. 3).
Juster de to andre kanoner med deres respektive kontrolknapper (3412, 3432 eller 3452) netop indtil intet lys er synligt.

2. Gråskala
Tilfør et gråskala billedsignal og reguler kontrolknapperne til deres normale indstilling.
Lad apparatet varme op i ca. 10 minutter.
Juster 3421 og 3441 indtil den ønskede gråskala er opnået.

C. Justeringer på teletekstdekoderen

1. Forbind ben 22 på IC7785 til jord
Fjernsynet bringes i teletekst mode. Med 2802 justeres til mest stillestående billede.
Kortslutning fjernes.

B. Adjustments to the CRT board

1. Cut-off point of CRT
Apply white-pattern signal.
Connect pin 7 of IC7260 to ground.
Adjust brightness and contrast until the DC voltage across 3401 is 0 V.
Adjust 3412, 3432 and 3452 for a black level of 130 V on the picture tube base.
Now turn Vg2 potentiometer (fig. 3).
Adjust the two other guns with their associated controls (3412, 3432 or 3452) until just no light will be visible.

2. Grey scale
Apply a grey scale test-pattern signal and set the controls to their normal settings.
Allow the se to warm up for about 10 minutes.
Adjust 3421 and 3441 until the desired grey-scale is obtained.

C. Adjustments to the CCT decoder

1. Connect pin 22 of IC7785 to ground
Set the TV set in teletext mode. Adjust 2802 to most static picture.
Remove short circuit.

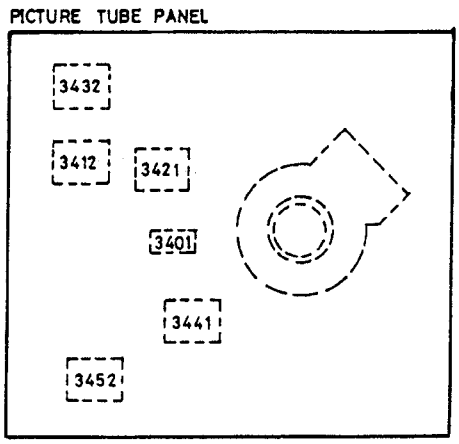


FIG. 6

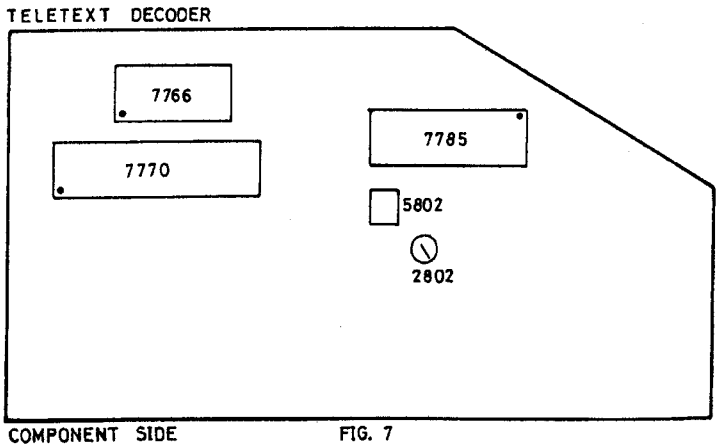


FIG. 7

REPARATIONSTIPS

Mekanisk vejledning

1. For at lette fejlfinding og reparation af apparatet kan chassiset trækkes ud af kabinettet og placeres mod højre side af apparatet.

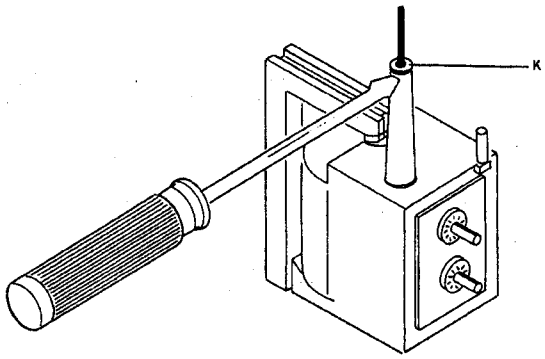
2. Når man har lirket klemringen K op med en skruetrækker eller bidetang, kan fokuskablet trækkes af linieudgangstransformatoren (se fig. 3).
   Når kablet monteres igen, skal klemringen først trykkes fast på trafoen, indtil der lyder et klik, og derefter kan kablet skubbes på plads.
   Pas på, at kablet bliver skubbet godt ned.
   Afbøjningsenheden, multipolenheden og billedrør danner et hele. Afbøjnings- og multipolenehderne er justeret optimalt fra fabrikken. Justering af disse enheder under reparation kan derfor ikke anbefales.

REPAIR HINTS

Mechanical Instructions

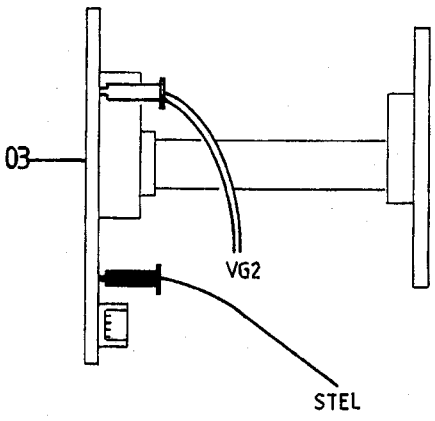
1. To facilitate troubleshooting and repairing, the set the chassis can be pulled out of the cabinet and placed against the right-hand side of the set.

2. After prizing up the clamping ring K with a screwdriver or side-cutting pliers the focus cable may be pulled off the line output transformer (see fig. 3).
   When refitting the cable first press the clamping ring in to the transformer until a click is heard; after this the cable may be pressed in place.
   Make sure that the cable is pressed down well.
   Together with the deflection unit and the flat square picture tubes applied form one whole. The deflection and multipole units have been adjusted in an optimum way in the factory. Adjustment of these units during repair is thus not recommended.



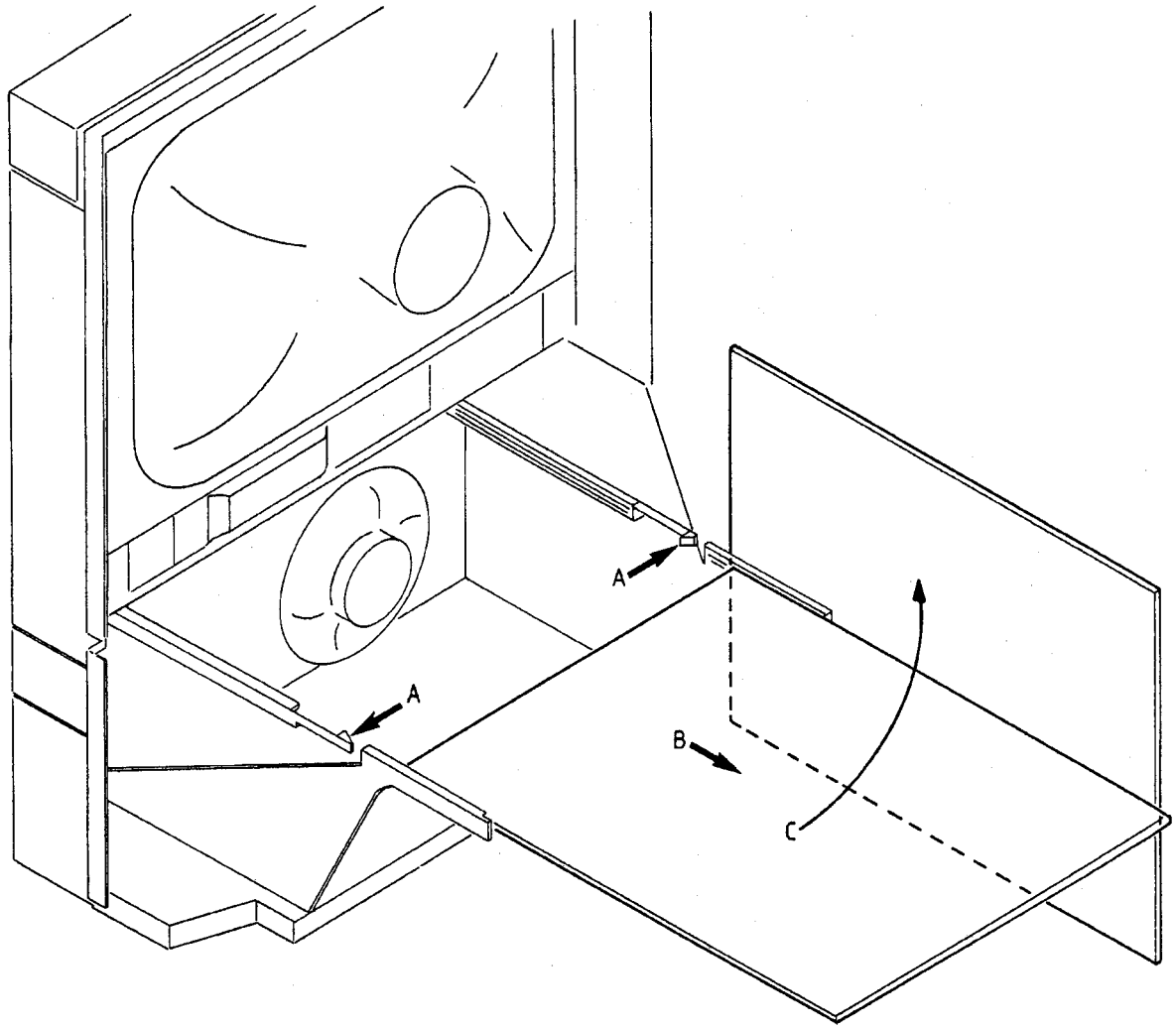
Bemærk: Placering af VG2 ledning og stelledning på billedrørsprintet.

Note: The siting of the VG2 wire and the chassis-wire on the CRT Board.



Serviceposition

Serviceposition



Chassiset sættes i serviceposition ved at løsne holderne (A) og trække chassiset ud (B).

Ledningerne løsnes, og chassiset drejes op (C).

Place the chassis in serviceposition by loosening the holders (A) and pulling the chassis out (B).

Loosen the leads and turn the chassis upwards (C).

REPARATIONSMETODE TIL STRØM-FORSYNINGEN

Advarsel!
Hvis spændingen på punkt D bliver større end +95 V, mens indgangsspændingen øges, skal belastningen og dens forbindelser kontrolleres.

Bemærkning 1
Afmonter R3672 og S5697.

Forbind en 220 V/100 W pære mellem punkt D og stel.
Brug en vario-transformator til at justere indgangsspændingen til cirka 95 V og kontroller spændingen på punkt D ved hjælp af et voltmeter.

Bemærkning 2
Afmonter S5697 og forbind en 220 V/100 W pære mellem punkt D og stel. Brug en vario-transformator til at justere indgangsspændingen til 220 V og mål samtidig spændingen på punkt D.

Vigtigt:
- Efter en komponent er blevet udskiftet, under en reparation, skal forsyningsspændingen øges fra 0 V ved hjælp af en variotransformator.

  Samtidig måles +95 (på 5M6).

  På den måde undgår man, at den nye komponent bliver ødelagt, såfremt flere komponenter er defekte.

  Hvis sikringen springer, eller strømforsyningen ikke stabiliseres, er flere komponenter defekte.

- Aflad elektrolytkondensatoren C2663.

1. Hvis sikring 1692 er sprunget, kan det være fordi, at TS7677 er defekt.

2. +95 er 0 V, fordi strømforsyningen ikke starter. Mens strømforsyningen øges fra 0 V, skal spændingen måles på basen af TS7677 med oscilloskop.

   a. Hvis oscilloskopet ikke viser en sinusformet spænding, er der en kortslutning i kredsløbet ved basen på TS7677 (f.eks. TS7674, TS7672, D6675 eller optokobler 7669). Hvis 7675 er ødelagt, skal R3675 altid efterses.

   b. Hvis oscilloskopet viser en sinusformet spænding, er der en for stor belastning af transformator 5666, f.eks.:
      - R3675 er afbrudt eller øget i værdi.
      - en fejl i kollektor-kredsløbet på TS7677.
      - en af dioderne på sekundær-siden af transformatoren 5655 er defekt.

REPAIR METHOD POWER SUPPLY

Warning
If during the raising of the input voltage the voltage at pin D becomes greater than +95 V, check the load and its connections.

Remark 1
Disconnect resistor 3672 and coil 5697.

Connect a 220 V/100 W lamp between point D and chassis.
Using a variable transformer, adjust the input voltage for about 95 V and check the voltage at point D by means of a voltmeter.

Remark 2
Disconnect coil 5697 and connect a 220 V/100 W lamp between pin D and chassis. Using a variable transformer, adjust the input voltage for 220 V and measure simultaneously the voltage at point D.

Important:
- After replacing a component during a repair, increase the supply voltage slowly from 0 V with a variable isolating transformer.

  Measure simultaneously the +95 (at 5M6).

  When a protection is energized, or the power supply does not stabilize, several components are defective.

  In this way it is prevented that the component just replaced becomes defective again.

- Discharge electrolytic capacitor C2663.

1. The +95 is not present and fuse 1652 is defective. Possible cause: TS7677 defective.

2. The +95 is 0 V, because the power supply fails to start. While increasing the supply voltage from 0 V, measure the voltage at the base of TS7677 with an oscilloscope.

   a. If the oscilloscope does not show a sinusoidal voltage, the fault is caused by a short-circuit in the base circuit of TS7677. (e.g. TS7674, TS7673, D6675 or opto-coupler 7669). If D6675 is defective, always check R3675 as well.

   b. If the oscilloscope shows a sinusoidal voltage, the fault is caused by a too great load of transformer 5763, for example:
      - R3675 high-ohmic
      - a fault in the collector circuit of TS7677.
      - one of the diodes on the secondary side of the transformer is defective.

7-2

R METHOD POWER SUPPLY

ng

g the raising of the input voltage the voltage
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connections.

1

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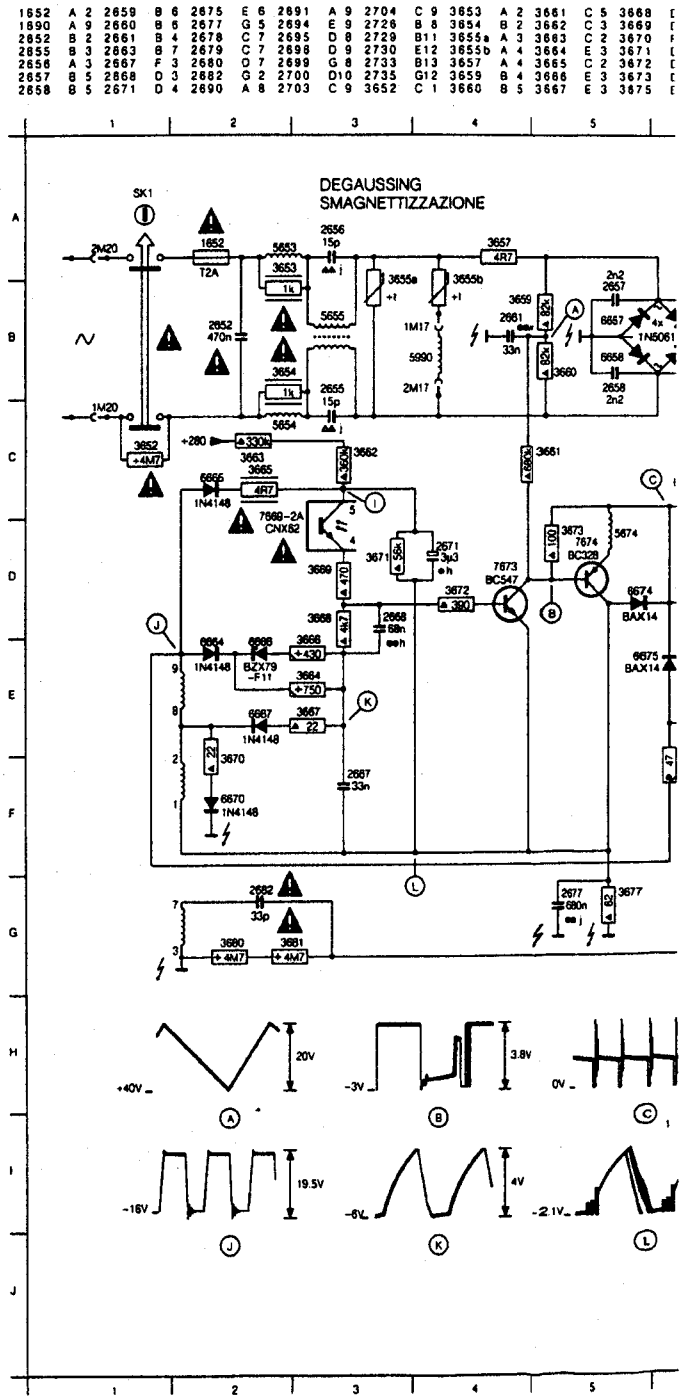
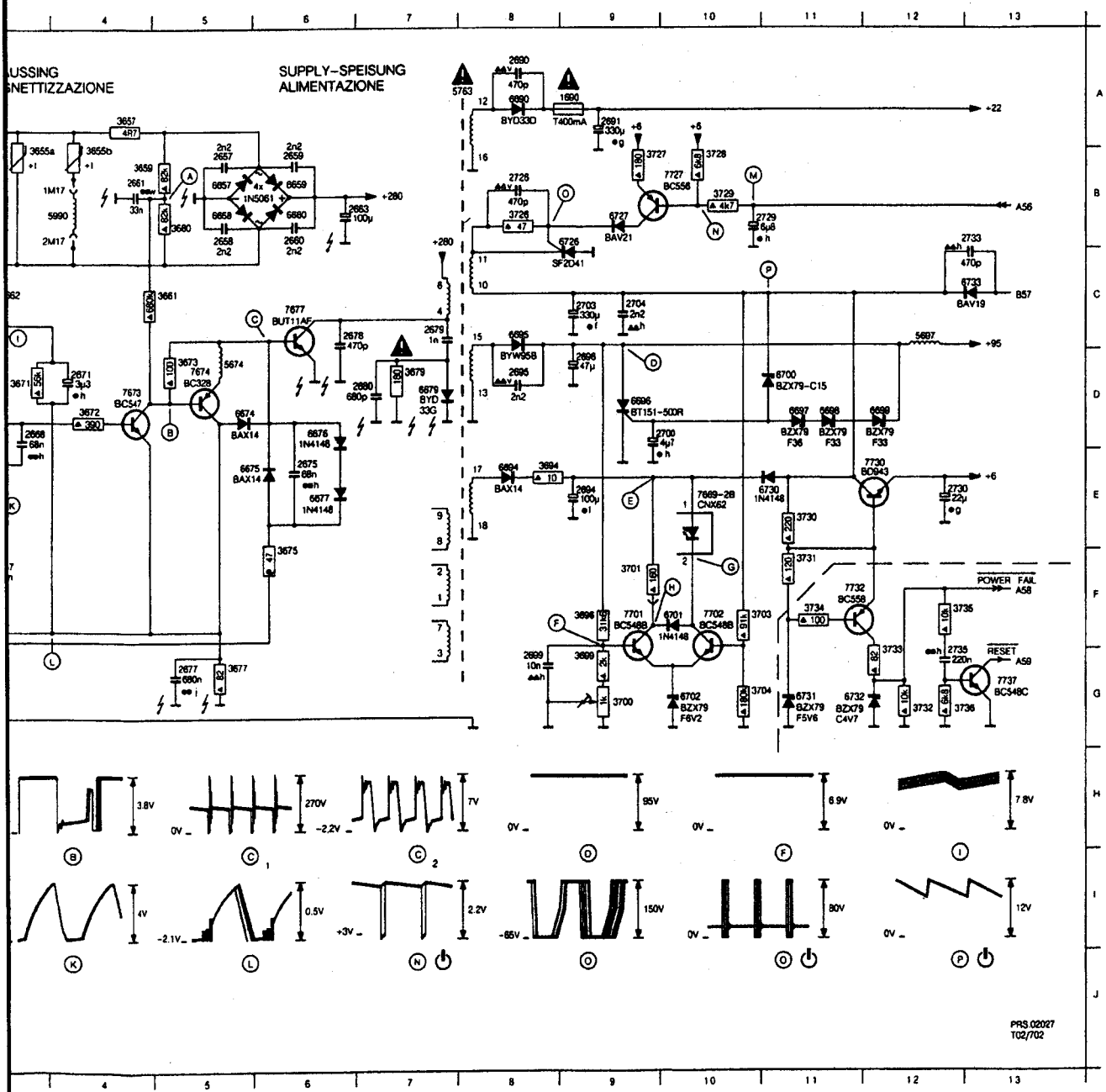


2704	C 9	3653	A 2	3661	C 5	3668	D 3	3677	G 5	3700	G 9	3729	B10	3736	G13	5990	B 4	6666	E 2	6679	D 7	6699	D12	6731	G11	7677	C 6	SK1	A 1		
2726	B 8	3654	B 2	3662	C 3	3669	D 3	3679	D 7	3701	F 9	3730	E11	5653	A 2	6657	B 5	6667	E 2	6690	A 8	6700	D11	6732	G11	7701	F 9				
2729	B11	3655a	A 3	3663	C 2	3670	F 2	3680	G 2	3703	F11	3731	F11	5654	C 2	6658	B 5	6670	F 2	6694	E 8	6701	F10	6733	C13	7702	F10				
2730	E12	3655b	A 4	3664	E 3	3671	D 3	3681	G 3	3704	G11	3732	G12	5655	B 3	6659	B 6	6674	D 5	6695	C 9	6702	G10	7689	C 2	7727	B10				
2733	B13	3657	A 4	3665	C 2	3672	D 4	3694	E 8	3726	B 8	3733	G12	5674	D 5	6660	B 6	6675	E 6	6696	D 9	6726	B 9	7689	E10	7730	E12				
2735	G12	3659	B 4	3666	E 3	3673	D 5	3696	F 9	3727	B10	3734	F11	5697	C12	6664	E 2	6676	D 6	6697	D11	6727	B 9	7673	D 4	7732	F11				
3652	C 1	3660	B 5	3667	E 3	3675	E 6	3699	G 9	3728	B10	3735	F13	5763	A 8	6665	C 2	6677	E 6	6698	D11	6730	E11	7674	D 5	7737	G13				



3. +95 er næsten 1 V.

   Fjern stik M6.

   Nu er der tre muligheder:

   a. Der er +95 V.

   b. Der er stadig næsten 1 V.

   c. Der er over +95 V.

Hvis a: Strømforsyningen fungerer, og fejlen kan findes i linieudgangen eller i beskyttelseskredsløbet (D6733, D6700, TH6696).

Hvis b: Et af beskyttelseskredsløbene forbliver aktiveret (TH6696, D6697, D6698, D6699).

Hvis c: Juster +95 med R3700.

Hvis det ingen virkning har:

a. Mål spændingen på anoden på optokoblerens diodedel (±15 V).

   Hvis der ingen spænding er, er fejlen formodentlig på

   - D6694
   - R3694
   - optokobleren (pos. nr. 7669)

b. Mål spændingen over C2677.

   Hvis spændingen er omkring -3,7 V, er optokobler kredsløbet afbrudt.

   Hvis der ikke er spænding, er fejlen formodentlig

   - D6670
   - R3670
   - R3677
   - en afbrydelse i TS7673
   - en afbrydelse i TS7674

4. +95 er omkring 25 V, og apparatet er i uønsket stand-by tilstand.

   Kontroller stand-by kredsløbet og TH6726.

3. The +95 is approximately 1 V.

   Remove plug M6.

   Now there are 3 possibilities:

   a. the +95 is present.

   b. the +95 is still about 1 V.

   c. the +95 is too high.

In case of situation
a: The power supply circuit is in working order and the fault must have been caused by the line output circuit or protection circuit D6733, D6700, TH6696.

In case of situation
b: One of the protection circuits remains in operation: TH6696, D6697, D6698, D6699.

In case of situation
c: First try to adjust the +95 again with R3700.

If this has no effect:

a. Measure the voltage at the anode of the diode part of the opto-coupler (±15 V).

   If there is no voltage, the fault is possibly caused by D6694, R3694, a short-circuit in the diode part or by an open transistor part of the opto-coupler.

   If the voltage is present:

b. Measure the voltage across C2677.

   If this voltage is approx. -3.7 V, the opto-coupler circuit has been interrupted.

   If there is no voltage, the fault may have been caused by D6670 or R3670, R3677, or an interruption in TS7673, 7674.

4. The +95 is approximately 25 V and the set is in an unwanted stand-by mode.

   Check the stand-by circuit and TH6726.

BILLEDUDGANG

Hvis billedet er sammenpresset, skal det kontrolleres, om udgangsspændingen på ben 17-IC7038 er over 2,5 V. Hvis dette ikke er tilfældet, skal fejlen findes i billedudgangsdelen.

FRAME OUTPUT

If the picture is suppressed check whether the output voltage on pin 17-IC7038 is >2.5 V. If this is not the case the fault must be looked for in the frame output stage.

FEJLSØGNING TELETEKST

1. Lod R3784 fri på teletekst-dekoder PCB10 og R3284 på hovedchassiset. Forbind et stykke ledning med målepind til ben 9 på IC7260.

ERRORS IN THE TELETEXT DECODER

1. Loosen resistor 3784 on teletext decoder 1750 and resistor 3284 on the carrier panel. Connect a piece of wire with measuring pin to pin 9 of IC7260.

7-3

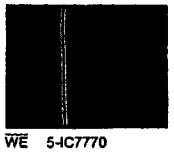
2. Tilslut en TV-generator med hvidt signal og vælg »Text« på fjernbetjeningen.

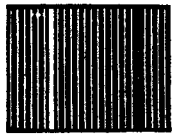
3. Ved at flytte målepinden til de punkter, der er nævnt under billederne, bør det pågældende mønster fremkomme.

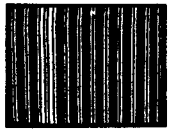
   Hvis der i stedet kommer et rent sort eller et rent hvidt billede, er der en kortslutning eller en afbrydelse det pågældende sted. Det kan være en fejl i én af de to IC'er: IC7766 eller IC7770.

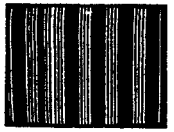
2. Connect a TV pattern. Apply a white pattern and select the teletext mode with the remote control.

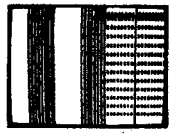
3. When transferring the measuring-pin to the points of IC7770 which are indicated under the pictures below a defined pattern is not present, but a uniform white or dark picture arises, there is question of short-circuit or an open connection on the relevant point. It may be caused by one of the two ICs, namely IC7766 – IC7770.

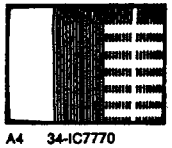


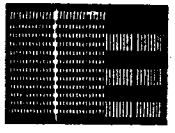


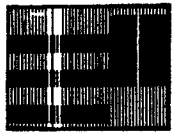


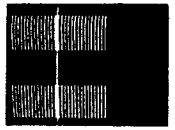


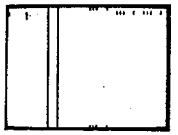


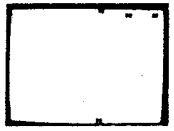


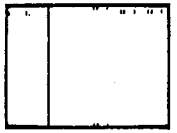












ISOLATIONSTEST

Ethvert apparat **skal** isolationstestes efter at det har været adskilt.
Testen udføres når apparatet igen er helt samlet og klar til udlevering til kunden.

Isolationstesten udføres på følgende måde:

De to stikben på netstikket kortsluttes og tilsluttes en af terminalerne på isolationstesteren. Den anden terminal fra isolationstesteren tilsluttes stelbenet i en af antennestikdåserne.

Netafbryderen sættes i ON position.

OBS!
For at undfå beskadigelser på apparatet er det vigtigt, at begge terminaler fra isolationstesteren har virkelig god kontakt.

Der drejes nu langsomt med spændingsreguleringe på isolationstesteren indtil en spænding på 1,5-2 kV er opnået. Her skal den holdes i 1 sekund, derefter drejes der langsomt ned for spændingen igen.

Der må ikke på noget tidspunkt under testen forekomme overslag.

INSULATION TEST

Each set **must** be insulation tested after it has been dismantled. The test is to be carried out when the set has been re-assembled and is ready for delivery to the customer.

The insulation test is carried out in the following way:

Short-circuit the two plug pins of the main plug and connect one of the terminals of the insulation tester. Connect the other terminal of the insulation tester to the chassis pin of one of the aerial sockets.

Set the mains switch in ON position.

NOTE!
To avoid ruining the set, it is essential that both insulator test terminals are in really good mechanical contact.

Now turn slowly the voltage control up on the insulation tester until a voltage of 1.5-2 kV is obtained. Hold it there for 1 sec., then turn slowly the voltage down again.

Flashovers are not allowed during the testing procedure.

KREDSLØBSBESKRIVELSE

Denne kredsløbsbeskrivelse omhandler en kort fattet teknisk beskrivelse af Bang & Olufsens seneste farve TV MX 1500.

Henvisninger i teksten refererer til diagrammerne forest i servicemanualen, hvis intet andet er nævnt.

NETDEL

Netdelen i MX 1500 er af switch mode typen, beregnet til netspændinger på 220 - 240 Volt.
Netdelen leverer 95V til liniedel, 19V til lyddel, samt 6V til forsyning af mikroprocessoren. Den er beskyttet mod overbelastning og overspænding.
Netdelen er opbygget i 3 hovedblokke:
Blok A er oscillator med en nominel frekvens på 40kHz, og kan variere fra 20kHz til 60kHz, afhængig af belastningen.
Blok B er en pulsbredde modulator som styrer oscillatorfrekvensen.
Blok C er et kontrol kredsløb som giver information til pulsbredde modulatoren om netdelens udgangsspænding. Se fig. 2.1.

Netdelen startes via modstandsnetværket 3659, 3660, 3661 og 3673, hvorved oscillatoren TS7677 starter. Når TS7677 leder vil der være en konstant spænding på 280V over vindingerne 4 og 6 af transformator 5763.
Dette vil resultere i en lineært voksende strøm igennem TS7677. Se fig. 2.2 og 2.3.
Herved vil der blive induceret en spænding mellem vikling 13 og 15 på sekundær siden af transformatoren. Denne vinding er imidlertid viklet modsat 4 og 6, og den inducerede negative spænding vil ikke kunne passere dioden 6695.
Under strømmens opvoksen gennem TS7677 vil der også induceres en spænding over vikling 1-9 som vil holde TS7677 åben. Når transformatoren går i mætning, vil denne spænding falde og forårsage at TS7677 ikke længere leder.
Spændingen over vinding 6-4 vil vende polaritet og, dioden 6679 vil lede. Herved opbygges der en hurtigt stigende spænding over kondensatoren 2679. Slutværdien af denne spænding, som er kollektor emitterspændingen på TS7677, er 540V. Når spændingen over vikling 6-4 vender polaritet ved t_1, vil også den spænding, der induceres mellem vikling 15-13 på sekundærsiden vende polaritet, og diode 6695 vil lede. 2696 fungerer som udglatningskondensator.

Strømmen i vikling 13-15 vil være lineært faldende. Når den magnetiske energi fra transformator 5763, er overført til kondensatoren 2696, vil strømmen i vikling 13-15 være lig nul. Dette er sket til tiden t_2.
Herefter danner kondensatoren 2679 og vikling 4-6 et oscillerende kredsløb i tiden t_2 - t_3.
Herved vil der atter induceres en spænding i vikling 1-9 og TS7677 vil lede, og forløbet starte forfra.

CIRCUIT DESCRIPTION

This circuit description gives a brief technical description of the latest colour TV from Bang & Olufsen, the MX 1500.

References in the text refer to the diagrams at the front of the service manual unless otherwise specified.

POWER-SUPPLY UNIT

The power-supply unit in the MX 1500 is of the switch mode type, designed for mains voltages of 220 - 240 Volts. The power-supply unit supplies an output voltage of 95V to the line output stage, 19V to the sound output stage and 6V to the microprocessor.
It is protected against overload and overvoltage.
The power-supply unit is made up of 3 main blocks:
Block A is an oscillator with a nominal frequency of 40kHz and capable of oscillating from 20kHz to 60kHz, depending on the load.
Block B is a pulse-width modulator which controls the oscillator frequency.
Block C is a control circuit which feeds information on the output voltage of the power-supply unit to the pulse-width modulator. See fig. 2.1.

The power-supply unit is started via the resistor network 3659, 3660, 3661 and 3673, thus starting the oscillator TS7677. When TS7677 is conducting there will be a constant voltage of 280V across the windings 4 and 6 of transformer 5763.
This will result in a linearly increasing current through TS7677. See fig. 2.2 and 2.3.
A voltage will thus be induced between winding 13 - 15 on the secondary side of the transformer. However, this winding is wound in the opposite direction to 4 - 6, and the induced negative voltage will not be able to pass the diode 6695.
During the increase of the current through TS7677, a voltage will also be induced across winding 1-9 which will keep TS7677 open. When the transformer is saturated, this voltage will drop and cause TS7677 to stop conducting.
The voltage across winding 6-4 will reverse polarity, and the diode 6679 will start conducting. A rapidly increasing voltage is thus built up across the capacitor 2679. The end value of this voltage, which is the collector-emitter voltage at TS7677, is 540V.
When the voltage across winding 6-4 reverses polarity at t_1, the voltage induced between winding 15-13 on the secondary side will also reverse polarity and diode 6695 will start conducting. 2696 operates as a smoothing capacitor.

The current in winding 13-15 will decrease linearly. When the magnetic energy from the transformer 5763 has been transferred to the capacitor 2696, the current in winding 13-15 will be equal to zero. This will have happened by the time t_2.
After that, the capacitor 2679 and winding 4-6 form an oscillating circuit during the period of time t_2-t_3.
A voltage will thus be induced in winding 1-9 once

Pulsbreddemodulatoren får tilført 3 signaler,

a. Spænding fra vikling 1-2/8-9 når TS7677 leder.

b. Spænding fra vikling 1-2 når TS7677 er spærret.

c. Strøm fra kontrolkredsløbet via optokobler 7669.

Når TS7677 leder, vil der opstå en spænding over vikling 1-2/8-9, som er koblet magnetisk med primær viklingen 4-6.
Denne spænding ledes via D6664 og R3664 til C2667 hvor den integreres.
Herved vil der opstå en negativ referencespænding over kondensatoren 2677 og modstanden 3677.
Denne referencespænding kan opstå på to måder når TS7677 leder:
1. Spændingen over vikling 1-2 ensrettes af 6670.
2. Spændingen over vikling 1-2/8-9 ensrettes af D6675.

Referencespændingen vil normalt være -3,2V. Hvis TS7673's tærskelværdi overskrides, vil den lede. Herved vil også TS7674 lede, og de -3,2 V ledes til basis af 7677. Dette vil forårsage at TS7677 relativt hurtigt vil spærre. I den tid hvor TS7677 er spærret, vil TS7674 lede via vikling 1-2/8-9 D6676, D6677 og R3675.
Samtidigt vil kondensator 2677 blive delvist afladet.
Når TS7677 ikke leder bliver spændingen over vikling 1-2,(som er afhængig af belastningen), ensrettet af D6667. Dette er vist af I3. Se fig. 2.4.

again and TS7677 will start conducting, and the whole sequence will start from the beginning.

The pulse-width modulator receives 3 signals,
a. Voltage from winding 1-2/8-9 when TS7677 is conducting.

b. Voltage from winding 1-2 when TS7677 is blocked.

c. Current from the control circuit via optocoupler 7669.

When TS7677 is conducting, a voltage will be generated across winding 1-2/8-9, which is magnetically coupled to the primary winding 4-6.
Via D6664 and R3664 this voltage is fed to C2667 where it is integrated.
A negative reference voltage will thereby be generated across the capacitor 2677 and the resistor 3677. This reference voltage can be generated in two ways when TS7677 is conducting:
1. The voltage across winding 1-2 is rectified by 6670.
2. The voltage across winding 1-2/8-9 is rectified by D6675.

The reference voltage will normally be -3.2V. If the threshold value of TS7673 is exceeded, it will start conducting. This will also make TS7674 start conducting, and the -3.2V will be fed to the base of 7677. This will cause TS7677 to block relatively quickly. While TS7677 is blocked, TS7674 will be conducting via winding 1-2/8-9, D6676, D6677 and R3675.
The capacitor 2677 will be partly discharged at the same time.
When TS7677 is not conducting, the voltage across winding 1-2 (which is load dependent) is rectified by D6667. This is shown by I3. See fig. 2.4.

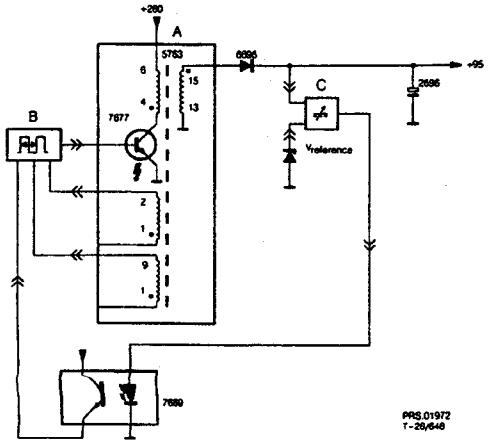


Fig. 2.1

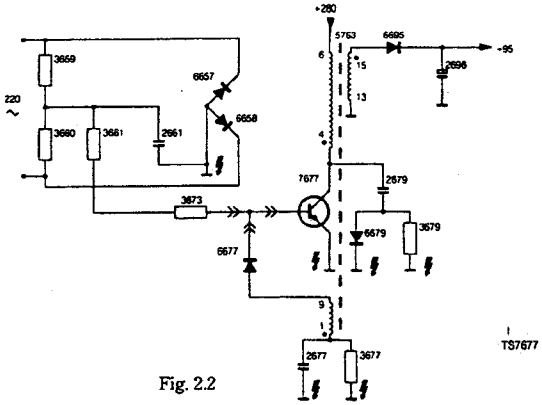
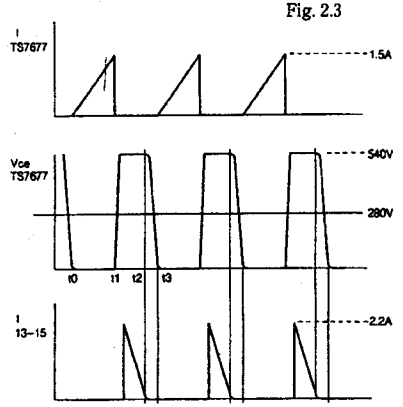


Fig. 2.2

Fig. 2.3



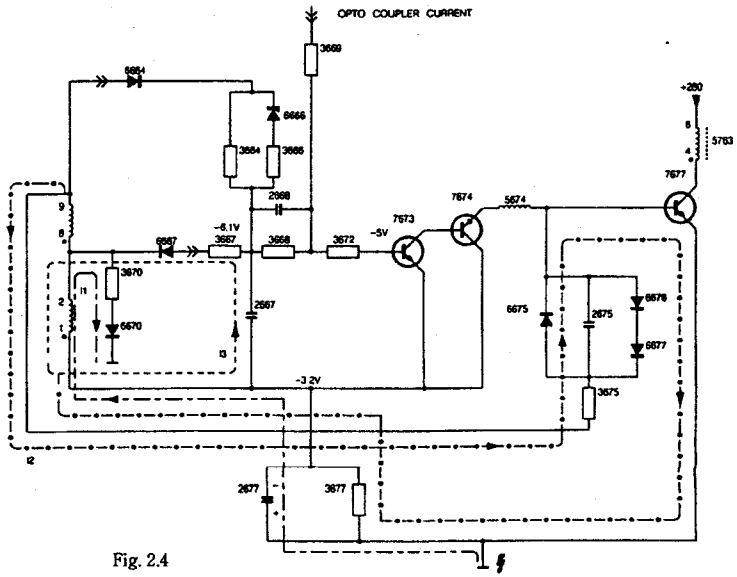


Fig. 2.4

9-3

9-3

MF-DEL:

MF-delen er placeret på et lodret stående print (U1040-2A).

MF-signalet føres ind til ben 16 og 1 på IC7079.

Tuner-AGC reguleringen (ben 4), AFC-spændingen (ben 5) og videosignalet(ben 12) kommer ud af IC'en.

IC7072 sørger for omskiftning mellem intern og extern (21-polet A/V) videosignal.

LUMINANS- OG CHROMINANSDEL

(Bemærk at alle benangivelser refererer til IC7260!)

LUMINANSDEL:

Videosignalet kommer fra ben 16 på U1040-2A (PAL version) og føres til ben 10 bl. a. via luminans forsinkelsen (delay line) TD1262.

Forstærkningen er kontrolleret af kontrastspændingen, som føres ind på ben 7.

Hvis strålestrømmen bliver for stor, begynder D6490 at lede. Dette aflader C2295 lidt, og spændingen på ben 7 falder. Derved skrues der ned for kontrasten.

Lyskontrolspændingen føres til ben 11.

Luminanssignalet adderes i R,G og B matrixen med farvesignalerne.

CHROMINANSDEL:

Videosignalet kommer fra ben 16 på U1040-2A (PAL version) og føres via R3259 og C2260 til ben 3.

I IC'en bliver chromasignalet forstærket. Denne forstærkning er kontrolleret af farvemætningsspændingen på ben 6. Og internt er den kontrolleret af farve AGC'en og kontrastindstillingen via luminansforstærkeren.

Udgangssignalet på ben 28 føres til forsinkelsesleddet (delay line) TD1270. Ind-og udgangen af dette forsinkelsesled er afstemt til 4,43MHz med henholdsvis S5270 og S5271.

Via R3273, R3274 og C2274 er det direkte chroma signal lagt symmetrisk til det forsinkede signal fra forsinkelsesleddet (delay line).

Addditionsforholdet er bestemt af R3274. Signalerne ud af forsinkelsesleddet føres til ben 21 og 22 til (B-Y)- og (R-Y)demodulatorerne.

På ben 13, 15 og 17 kan externe R,G,B signaler føres ind fra 21-polet A/V stikket.
Omskiftning mellem interne og externe R,G,B signaler sker på ben 9. Hvis spændingen her kommer over 0,7V, vil de interne signaler blive koblet fra, og de externe signaler føres til R,G,B udgangene.

IF UNIT:

The IF unit is located on the vertical PCB (U10402A).

The IF signal is fed to pins 16 and 1 of IC7079.

The tuner AGC adjustment (pin 4), the AFC voltage (pin 5) and the video signal (pin 12) comes out of the IC.

IC7072 takes care of switching between internal and external (21-pin A/V) video signals.

LUMINANCE AND CHROMINANCE UNITS

(Please note that all pin numbers refer to IC7260!)

LUMINANCE UNIT:

The video signal is fed from pin 16 of U1040-2A (PAL version) to pin 10 via, for example, the luminance delay line TD1262.

The amplification is controlled by the contrast control voltage which is fed to pin 7.

If the beam current becomes too great, D6490 starts conducting. This will cause C2295 to be slightly discharged, and the voltage at pin 7 drops. The contrast is thereby reduced.

The brightness control voltage is fed to pin 11.

The luminance signal is added to the colour difference signals in the R, G and B matrices.

CHROMINANCE UNIT:

The video signal is fed from pin 16 of U1040-2A (PAL version) to pin 3 via R3259 and C2260.

The chrominance signal is amplified in the IC. This amplification is controlled by the colour saturation control voltage at pin 6, and it is controlled internally by the colour AGC and the contrast control via the luminance amplifier.

The output signal at pin 28 is fed to the delay line TD1270. The input and output of this delay line are tuned to 4.43MHz by means of S5270 and S5271 respectively.

Via R3273, R3274 and C2274 the direct chrominance signal is added symmetrically to the delayed signal from the delay line.

The ratio of this addition is determined by R3274. The output signals from the delay line are fed via pins 21 and 22 to the (B-Y) and (R-Y) demodulators.

External R, G and B signals from the 21-pin A/V plug can be fed to pins 13, 15 and 17.
Switching between internal and external R, G and B signals takes place at pin 9. If the voltage here exceeds 0.7V, the internal signals will be switched off, and the external signals will be fed to the R, G and B outputs.

R.G.B. UDGANGE:

Billedrørskredsløbene og R,G og B udgangene er placeret på billedrørsprintet.

De tre signaler R,G og B føres fra ben 12, 14 og 16 til udgangstransistorerne 7446, 7426 og 7406.

R og B signalernes amplitude til udgangene kan justeres med henholdsvis R3441 og R3421.
Med disse potentiometre kan gråskalaen (drive) justeres.

DC-spændingen på kollektorerne af udgangene, og dermed cut-off-punktet kan justeres med R3452, R3432 og R3412.

LYDDEL:

MF signalet hentes fra ben 19 - U1040 og føres gennem båndpas filtret U1130 til ben 2 og 3 på lydIC'en 7101.

På ben 9 føres LF-lyd ud til 21-polet A/V stikket. På ben 10 føres lydsignalet fra 21-polet A/V stikket ind.

Omskiftning af lyd fra HF og 21-polet A/V stikket sker ved hjælp af transistorerne 7871, 7520 og 7521.

Udgangssignalet til højttaler og hovedtelefon tages ud på ben 17.

Link-informationerne til og fra videomaskine føres ind og ud på ben 8 på 21-polet A/V stikket.

SYNKKREDSLØB:

Synkkredsløbet sidder på et af de lodretstående moduler (U1040-2B).

Når modtageren er i STAND BY, forsynes IC7038 med 12V.

Når apparatet er tændt, forøges denne forsyning til 19V. Linieoscillatoren, puls-breddemodulatoren samt forstærkeren starter op, således at der på ben 11 på IC7038 kommer et liniefrekvent signal med en puls-pause forhold på ca. 50%.

Når kredsløbet er startet op, overtages forsyningen til IC7038 af de 12V på ben 10.

SYNKSEPARATOR:

Videosignalet føres ind på ben 5 på IC7038 og separeres her, så der kommer en linie-synk på ben 4 og en billed-synk på ben 1. Samtidig sendes et stations-identifikations-signal (synk. ident.) fra ben 13 til micro-processoren.

R.G.B. OUTPUTS:

The picture tube circuits and the R, G and B outputs are located on the picture tube PCB.

The three signals R, G and B are fed from pins 12, 14 and 16 to the output transistors 7446, 7426 and 7406.

The amplitude of the R and B signals to the outputs can be adjusted by means of R3441 and R3412 respectively.
By means of these potentiometers it is possible to adjust the grey scale (drive).

The DC voltage at the output collectors, and thus the cut-off point, can be adjusted by means of R3452, R3432 and R3412.

AUDIO UNIT:

The IF signal is obtained from pin 19 - U1040 and fed through the band-pass filter U1130 to pins 2 and 3 on the audio IC7101.

From pin 9 the IF audio signal is transmitted to the 21-pole A/V plug. The audio signal from the 21-pole A/V plug is input at pin 10.

Switching of sound from HF and the 21-pole A/V plug is effected by means of the transistors 7871, 7520 and 7521.

The output signal for speakers and headphones is obtained from pin 17.

The Link information to and from a video tape recorder is input and output at pin 8 of the 21pole A/V plug.

SYNC CIRCUIT:

The sync circuit is located on one of the vertical modules (U1040-2B).

When the receiver is on STAND BY, IC7038 is supplied with 12V.

When the set is switched on, this supply is increased to 19V. The line oscillator, the pulse- width modulator and the amplifier start up so that a line-frequent signal with a duty ratio of approx. 50% is generated at pin 11 of IC7038.

When the circuit has started up, the power supply for IC7038 is taken over by the 12V at pin 10.

SYNC SEPARATOR:

The video signal is input at pin 5 of IC7038, and here it is separated so that a horizontal sync signal is applied to pin 1 and a frame sync signal to pin 1. *A station identification signal (sync. ident.)* is simultaneously transmitted from pin 13 to the microprocessor.

BILLEDUDGANG:

Billedudgangen leverer strømmen til billedafbøjningsspolen.

Signalet fra synk-separatoren føres gennem TS7042 til den komplementære udgang, bestående af TS7571 og TS7573.
Se fig. 11.2.

I tiden fra t_0 - t_1 er TS7573 lukket, og TS7571 leder og forsyner billedafbøjningen med strøm. Dioderne D6573 og D6574 forhindrer, at der løber strøm fra 163V via R3571, R3572 og R3573 til afbøjningsspolen.

Fra t_1 - t_2 lukker TS7571, og TS7573 leder, og forsyner dermed billedafbøjningsspolen.

Ved t_2 lukker TS7573.

Tilbageløbsperioden er fra t_2 - t_3. Strømmen gennem afbøjningsspolen løber nu gennem R3574, D6572 og basis-kollektorstrækningen fra TS7571 (leder baglæns).

I tiden t_2 - t_3 er TS7042 lukket.
Liniearitet og amplitude af afbøjningsstrømmen er bestemt af tilbagekoblingen til synk IC'en.

Billedhøjden er afhængig af amplituden på tilbagekoblingssignalet, og denne kan justeres med R3580.

FRAME OUTPUT STAGE:

The frame output stage supplies the current for the vertical deflection coil.

The signal from the sync separator is fed through TS7042 to the complementary output consisting of TS7571 and TS7573.
See fig. 11.2.

During the period t_0 - t_1, TS7573 is cut off, and TS7571 conducts and supplies current to the deflection coil. The diodes D6573 and D6574 prevent current from flowing to the deflection coil from 163V via R3571, R3572 and R3573.

From t_1 to t_2, TS7571 cuts off, and TS7573 conducts and thus supplies current to the vertical deflection coil.

TS7573 cuts off at t_2.

The flyback period is from T_2 to t_3. The current through the deflection coil now flows through R3574, D6572 and the base collector (inversely conducting) of TS7571.

TS7042 is cut off from t_2 to t_3.
The linearity and amplitude of the deflection current are determined by the feedback coupling to the sync IC.

The frame height is dependent on the amplitude of the feedback coupling signal and can be adjusted by means of R3580.

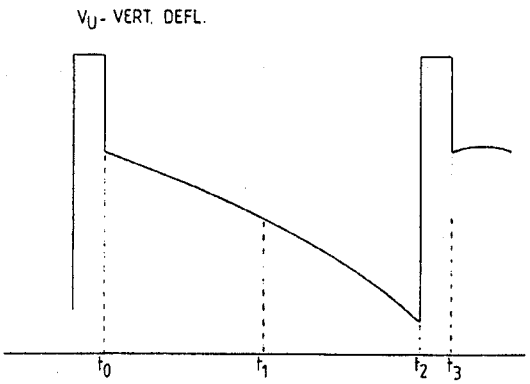


Fig. 11.2

LINIEUDGANG:
Fig. 12.2 er et forenklet diagram af linieudgangen.

I realiteten er L en serieforbindelse af S5611, og linieafbøjningsspolen. C2 er en serieforbindelse af C2611 og C2608.

L og C2 er delt i 2, for at gøre øst-vest modulation mulig.

Ved hjælp af primærsiden på linieudgangstransformatoren T5620 og afbøjningsspole L, er kondensator C2 opladet til 95V. Denne værdi holdes næsten konstant, fordi C2 har en stor værdi. Udstyringen af TS kommer fra synk IC7038.

I tiden t_1 - t_2 er styrespændingen positiv (se fig. 12.3), transistor TS er mættet, og spændingen på kollektoren er nul.

Som resultat er L parallel med C2, så en konstant spænding på 95V opstår over kondensatoren. Samtidig vil en savtand-strøm løbe gennem L og TS.

Ved t_2 bliver styrespændingen negativ, og TS lukker.

Strømmen, der løb gennem L, løber videre gennem C1 og overfører energi fra L til C1.
Strømmen gennem L falder, og en sinusformet spænding over C1 stiger.

Ved t_3 er al energi fra L blevet overført til C1, og tilbageførslen af energi starter i tiden t_3 t_4.

Så aflader C1 strøm tilbage til L, således at spændingen over C1 falder, og strømmen gennem L er sinusformet.
Hvis al energi fra C1 igen var overført til L, ville spændingen over C1 blive negativ. I stedet begynder D at lede ved t_4 og medfører, at L bliver tilsluttet C2 igen.

Spændingen over L er igen 95V, hvilket betyder, at vi er tilbage ved t1.

I det øjeblik strømmen er ved at skifte retning, overtager TS strømmen, fordi den har modtaget en positiv styrespænding ved t_0. Bemærk at t_0 skal altid komme før t1 for at sikre, at TS leder på rette tid.

ØST-VEST MODULATOR
Øst-vest modulatoren består af transistorene TS 7600,7601 og en række passive komponenter.

Modulatoren skal forhindre pudeforvrængning, og det gøres ved at modulere linieafbøjningsstrømmen ind på midtpunktet af forbindelsen af C2611 og C2608.

Med R3598 kan billedbredden justeres.

HORIZONTAL OUTPUT STAGE:
Fig. 12.2 is a simplified diagram of the horizontal output stage.

In reality, L is a series connection of S5611 and the horizontal deflection coil. C2 is a series connection of C2611 and C2608.

L and C2 have been split into two in order to enable east-west modulation.

By means of the primary side of the line output transformer T5620 and deflection coil L, capacitor C2 is charged to 95V. This charge remains virtually constant because C2 has a large value. The drive for TS comes from sync IC7'038.

During t_1 - t_2 the drive voltage is positive (see fig. 12.3), transistor TS is saturated, and its collector voltage is zero.

As a result, L is parallel to C2 so that a constant voltage of 95V is generated across the capacitor. A sawtooth current will flow through L and TS at the same time.

At t_2 the drive voltage becomes negative and TS switches off.

The current which flowed through L flows on through C1 and transfers energy from L to C1.
The current through L drops and a sinusoidal voltage across C1 rises.

At t_3, all energy from L has been transferred to C1, and the recovery of energy starts during t_3 - t_4.

C1 then discharges current back to L so that the voltage across C1 drops, and the current through L is sinusoidal.
If all energy from C1 were transferred back to L the voltage across C1 would become negative. However, D starts conducting at t_4 instead and this causes L to be reconnected to C2.

The voltage across L is once again 95V, meaning that we are back to t_1.

The moment the current is about to change directions, TS takes over the current because it has received a positive control voltage at t_0. Note that t_0 must always come before t_1 in order to ensure that TS is conducting at the right time.

EAST-WEST MODULATOR:
The east-west modulator comprises the transistors TS7600 and TS7601 and a number of inactive components.

This modulator has to prevent pincushion distortion and that is achieved by modulating the horizontal deflection current into the centre of the connection between C2611 and C2608.

Picture width can be adjusted by means of R3597.

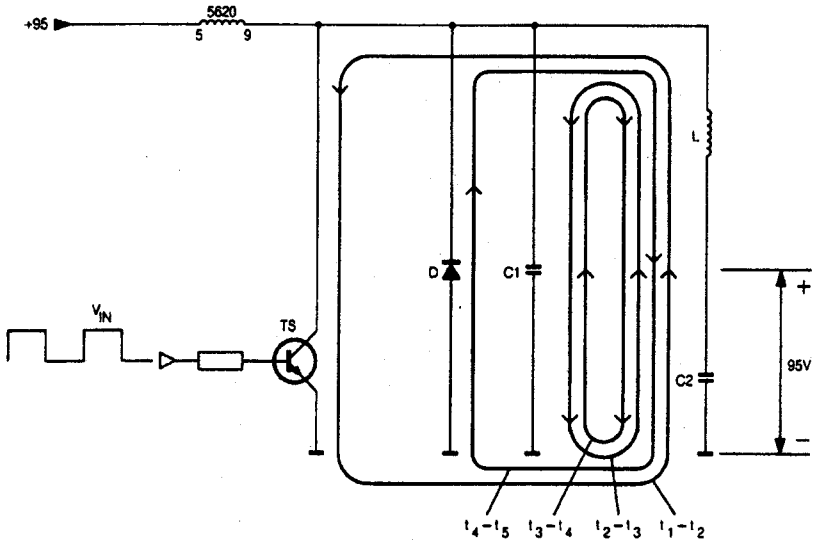
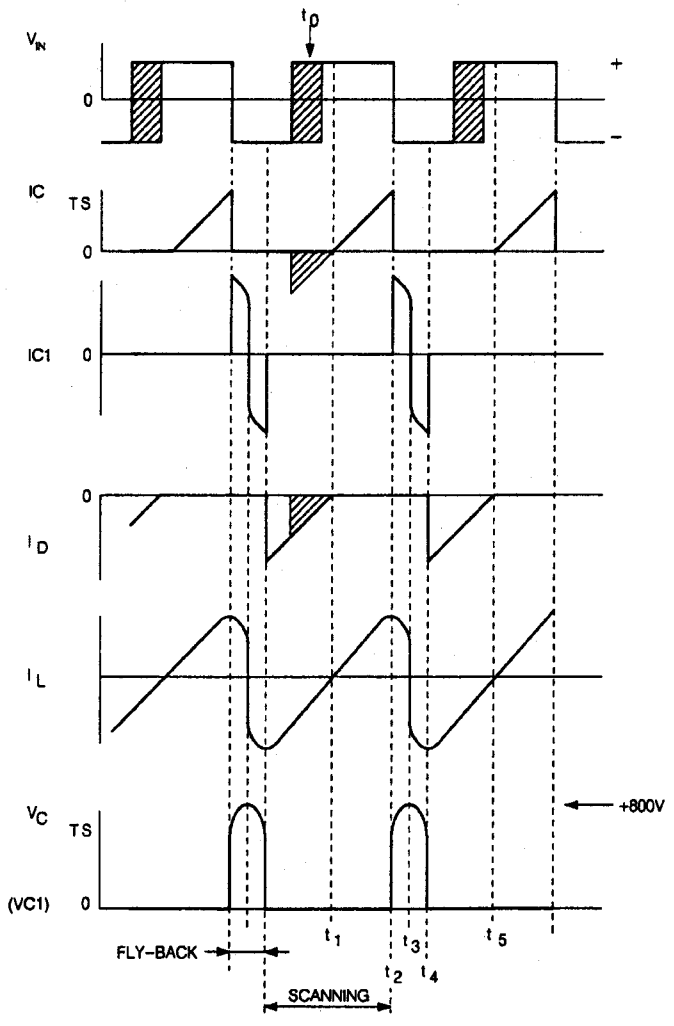

+95
5620
5
9
L
D
C1
C2
+
95V
−
V_{IN}
TS
t_4-t_5
t_3-t_4
t_2-t_3
t_1-t_2

Fig. 12.2


t_0
V_{IN}
0
+
−
IC
TS
0
IC1
0
0
I_D
I_L
V_C
TS
(VC1)
0
+800V
t_1
t_3
t_5
t_2
t_4
FLY-BACK
SCANNING

LINIEUDGANGSTRAFO

Fra linieudgangstransformatoren kommer en række spændinger, som kan bruges forskellige steder i apparatet.

- 25kV Højspænding til billedrør
- 163V Forsyning
- 12V Forsyning
- 12d Forsyning
- Glødespænding til billedrør.

MICROPROCESSOR

I microprocessoren sker der regulering og kontrol af en række processorer i apparatet, ligesom behandling af IR-signal og styring af display sker her.

LINE OUTPUT TRANSFORMER:

The line output transformer produces a number of voltages which can be used for various purposes in the set.

- 25kV High voltage for picture tube
- 163V Power supply
- 12V Power supply
- 12d Power supply
- Heater voltage for picture tube.

MICROPROCESSOR:

The microprocessor regulates and controls a number of processors in the set, and processing of the IR signal and display control is also carried out here.